LETTING DATE

CONSTRUCTION PROJECT NO.

# TRANSPORTATION CABINET
# DEPARTMENT OF HIGHWAYS

## *REHABILITATION PLANS*

# CONTRACT NO. BK-007

## ESTIMATE OF QUANTITIES

| BID ITEM CODE | | 08104 | 08151 | 08001 | 02231 | 08160 | 08170 | 03299 | 21532ED | 23813EC | 08301 | 08305 | 08019 | 01000 | 02223 | 02599 | 22861EN | 24595EN | 24595EN | 02650 | 02569 | 02726 | 02381 | 02351 | 02363 | 01890 | 22146EN | 23744EC | 03271 | 23378EC | 03250 | 00003 | 00212 | 00307 | 02091 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BID ITEM | | Concrete Class "AA" | Steel Reinforcement, Epoxy Coated | Structure Excavation, Common | Structure Granular Backfill | Structural Steel ① | Shear Connectors ② | Armored Edge for Concrete | Rail System Type III | Deck Drain | Remove Superstructure | Remove Reinf Concrete | Cyclopean Stone Rip Rap | Perforated Pipe - 4 In | Granular Embankment | Fabric-Geotextile Type IV | Geotextile Reinforcement | Elasticized EPS (10") | Elasticized EPS (16") | Maintain and Control Traffic | Demobilization | Staking | Remove Guardrail | Guardrail-Steel W Beam S Face | Guardrail Conn. to Bridge End TY A | Island Header Curb Type 1 | Concrete Patching Repair | Epoxy Injection Crack Repair | Tree Trimming ③ | Concrete Sealing | Waterproofing Membrane | Crushed Stone Base | Class 2 Asphalt Base 1.00D PG 64-22 | Class 2 Asphalt Surface 0.38B PG 64-22 | Remove Pavement |
| UNIT | | C.Y. | LBS. | C.Y. | C.Y. | L.S. | L.S. | L.F. | L.F. | Each | L.S. | L.S. | Tons | L.F. | C.Y. | S.Y. | S.Y. | S.Y. | S.Y. | L.S. | L.S. | L.S. | L.F. | L.F. | EA | L.F. | SQFT | L.F. | L.F. | SQFT. | SQFT. | TON | TON | TON | SQYD. |
| Substructure | Abutment 1 | 10 | 1055 | 237 | 143 | | | 36.8 | | | | | 80 | 168 | 137 | 451 | 352 | 5 | 5 | | | | | | | | | | 22 | 640 | | | | | |
| | Pier 1 | 1 | 65 | | | | | | | | | | | | | | | | | | | | | | | | 228 | 139 | 44 | 2096 | | | | | |
| | Pier 2 | 1 | 65 | | | | | | | | | | | | | | | | | | | | | | | | 289 | 197 | 22 | 2096 | | | | | |
| | Pier 3 | 1 | 65 | | | | | | | | | | | | | | | | | | | | | | | | 335 | 333 | 44 | 2096 | | | | | |
| | Abutment 2 | 17 | 2378 | 333 | 164 | | | 36.8 | | | | | 90 | 250 | 213 | 495 | 407 | 10 | | | | | | | | | 107 | | 22 | 1155 | 183 | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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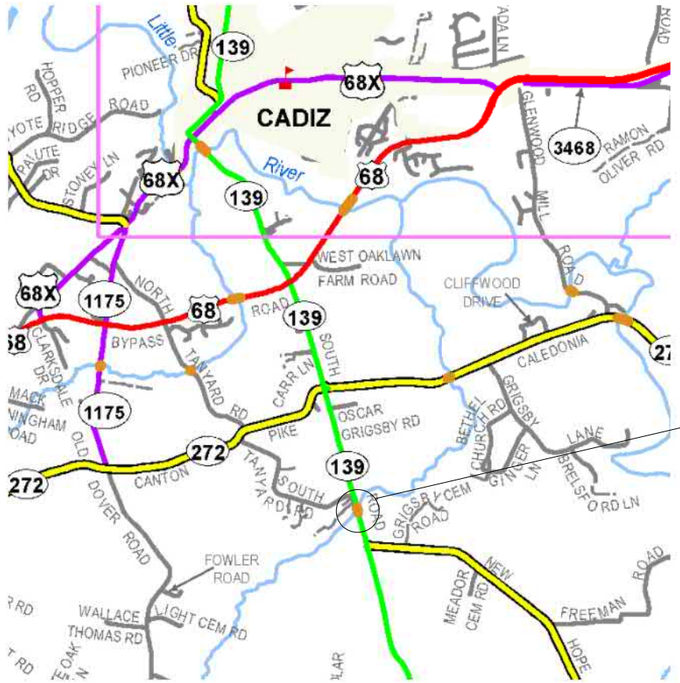
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Superstructure | | 183 | 38917 | | | | | | 387 | 16 | | | | | | | | | | | | | | | | | | | | | | | | | |
| BRIDGE TOTALS | | 213 | 42545 | 570 | 307 | 1 | 1 | 74 | 387 | 16 | 1 | 1 | 170 | 418 | 350 | 946 | 759 | 15 | 5 | 1 | 1 | 1 | 200 | 200 | 4 | 100 | 959 | 669 | 154 | 8085 | 183 | 54 | 66 | 16 | 300 |




LOCATION MAP

111B00012N
KY 139
OVER BURGE CREEK
36.818148547, -87.814931836

① Estimated Weight of Structural Steel = 101760 lbs.

② Estimated Weight of Shear Connectors = 1626 lbs.

③ Debris removal in channel is incidental to Tree Trimming.

## INDEX OF SHEETS



## SPECIAL NOTES

Concrete Patching Repair
Epoxy Injection Crack Repair
Utilities and Rail Certification
Concrete Sealing
Concrete Waterproofing Membrane
Treatment of End Bent or Abutment Backfills Using Geotextile Reinforcement and Elastic Inclusion

## SPECIAL PROVISIONS

4(08) - Welding Steel Bridges

## STANDARD DRAWINGS

| | |
|---|---|
| BGX-006-10 | Stencils for Structures |
| BGX-015-03 | Bridge Drains |
| BHS-008-02 | Rail System Type 3 |
| BJE-001-13 | Neoprene Expansion Dams and Armored Edges |
| RBC-002-03 | Guardrail Connector to Bridge End Type A Components |
| RBC-003-08 | Guardrail Connector to Bridge End Type A and A-1 Components |
| RBC-005 | Guardrail Connector to Bridge End Type A |
| RBR-010-06 | Guardrail Terminal Sections |
| RGX-100-06 | Treatment of Embankments at End-Bents |
| RGX-105-08 | Treatment of Embankments at End-Bents |

## SPECIFICATIONS

2012 Standard Specifications for Road and Bridge Construction.

2017 AASHTO LRFD Bridge Design Specifications with Current Interims.

STATE OF KENTUCKY
C. DOUGLAS FARMERLEE
28607
LICENSED PROFESSIONAL ENGINEER

September 20, 2018

BRIDGE NUMBER
111B00012N

| REVISION | DATE |
|---|---|
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|---|---|
| DATE: 09/20/2018 | CHECKED BY |
| DESIGNED BY: D. Broekhuizen | J. Musch |
| DETAILED BY: D. Broekhuizen | J. Musch |

Commonwealth of Kentucky
DEPARTMENT OF HIGHWAYS

COUNTY
TRIGG

ROUTE
KY 139

CROSSING
BURGE CREEK

*TITLE SHEET*

PREPARED BY
AECOM
BRIDGING KENTUCKY

SHEET NO.
S1

DRAWING NO.
27826

FILE NAME: C:\PW_WORKING\D0128153\IXI7_BORDER.DGN
USER: dan.broekhuizen
DATE PLOTTED: September 19, 2018
E-SHEET NAME:
Power GEOPAK v8.11.9.832

SPECIFICATIONS: All references to the Standard Specifications are to the current edition of the Kentucky Department of Highways Standard Specifications for Road and Bridge Construction with current Supplemental Specifications. All references to the AASHTO Specifications are to the AASHTO LRFD Bridge Design Specifications, with Interims.

DESIGN LOAD: This bridge is designed for KY HL-93 live load. The KY HL-93 live load is arrived at by increasing the standard HL-93 truck and lane loads as specified in the AASHTO Specifications by 25%.

FUTURE WEARING SURFACE: This bridge is designed for an allowance of 60 PSF for a future wearing surface.

DESIGN METHOD: All members are designed by the load and resistance factor method as specified in the 8th Edition of the AASHTO Specifications.

MATERIALS DESIGN SPECIFICATIONS:

| | | | |
|---|---|---|---|
| For Class "AA" Concrete | f'c | = | 4000 psi |
| For Steel Reinforcement | fy | = | 60000 psi |
| For Structural Steel | fy | = | 50000 psi |

CONCRETE: Class "AA" Concrete is to be used throughout the superstructure, and in portions of the Abutments above the bridge seats.

REINFORCEMENT: Dimensions shown from the face of concrete to bars are to center of bars unless otherwise shown. Spacing of bars is from center to center of bars. Clear distance to face of concrete is 2" unless otherwise noted. Epoxy coat bars designated by suffix (e) in accordance with Section 811.10 of the Standard Specifications. Use stirrup bend diameters for bars designated by suffix (s) in a Bill of Reinforcement.

STAY-IN-PLACE FORMS: The use of metal stay-in-place formwork for the bridge deck is permitted provided the corrugations are filled with expanded polystyrene.

BEVELED EDGES: Bevel all exposed edges ¾", unless otherwise noted.

INCIDENTAL ITEMS: The Contractor is required to complete the structure in accordance with the Plans and Specifications. Material or labor, not otherwise specified, are to be considered incidental to the contract.

COMPLETION OF THE STRUCTURE: The Contractor is required to complete the structure in accordance with the Plans and Specifications. Material, labor, or construction operations, not otherwise specified, are to be included in the bid item most appropriate to the work involved. This may include cofferdams, shoring, excavations, backfilling, removal of all or parts of existing structures, phased construction, incidental materials, labor or anything else required to complete the structure.

TEMPORARY SUPPORTS: Temporary supports or shoring will not be permitted under the beams when pouring the concrete floor slab or when taking "Top of Beam" elevations.

SHOP DRAWINGS: When any changes in the design plans are proposed by the Fabricator or Supplier, the Shop Drawings reflecting these changes shall be submitted to the Department through the Contractor.
Submit shop drawings that are required by the plans and specifications to the Department through the Contractor.

SHOP DRAWINGS (STRUCTURAL STEEL): The Contractor shall submit full sets of prints of the detailed shop drawings for all structural steel to the Department for review in accordance with Section 607.03.01 of the Specifications.

CONSTRUCTION IDENTIFICATION: The names of the Prime Contractor and any Subcontractor shall be imprinted in the concrete with one inch letters at a location designated by the Engineer. The Contractor shall furnish all Plans, equipment, and labor necessary to do the work for which no direct payment will be made. See Standard Drawing BGX-006, c.e.

DIMENSIONS: Dimensions shown on these plans are taken from field survey data. The Contractor shall verify all elevations and dimensions with field measurements prior to ordering materials. All plan dimensions are for a normal temperature of 60°F. Layout dimensions are horizontal dimensions.

BEFORE YOU DIG: The Contractor shall call 1-800-752-6007 to reach KY 811, the one-call system for information on the location of existing underground utilities. The call is to be placed a minimum of two and no more than ten business days prior to excavation. The Contractor should be aware that owners of underground facilities are not required to be members of the KY 811 One-Call Before-U-Dig (BUD) service. The Contractor must coordinate excavation with the utility owners, including those whom do not subscribe to KY 811. It may be necessary for the Contractor to contact the county court clerk to determine what utility company have facilities in the area.

ON-SITE INSPECTION: Each contractor submitting a bid for this work shall make a thorough inspection of the project site prior to submitting a bid and shall be thoroughly familiarized with existing conditions so that work can be expeditiously performed after a contract is awarded. Submission of a bid will be considered evidence of this inspection having been made. Any claims resulting from site conditions will not be honored by the Department of Highways.

STAKING: In addition to the requirements spelled out in Section 201 of the Standard Specifications, the Contractor is required to set the profile grade, determine the bridge seat elevations, and set top of deck elevations for determining X-dimensions. The proposed profile grade shall nearly match existing. All payment for this work is incidental to the Contract.

CONSTRUCTION JOINTS: Unless shown otherwise, the concrete surface at all construction joints shall be intentionally roughened to a minimum 1/4 inch amplitude. Where keyed construction joints are indicated on the Plans, intentional roughening of the concrete is not required.

PAYMENT FOR STRUCTURAL STEEL: The lump sum bid for structural steel shall be full payment for all structural steel, bolts, washers, welding and welding materials, floor drains, and all labor and materials necessary to erect the steel in accordance with the Plans and Specifications. The approximate weight of the structural steel shown in the estimate of quantities does not include overrun.

HIGH STRENGTH BOLT CONNECTIONS: Unless otherwise specified on the Plans, all bolted connections shall be ASTM A325 ¾" diameter high strength bolts, nuts, and washers. Open holes shall be 1/16" larger than the diameter of the bolts. Furnish Type 1 (Galvanized) bolts as described in ASTHO M164. All high strength bolted field connections are to be installed using "direct tension indicators" (DTI's) in accordance with the Standard Specifications and ASTM F959. All DTI's shall be mechanically zinc coated. Installation details of the DTI's shall be shown on the shop plans.

SLIP CRITICAL CONNECTIONS: Slip critical connections have been designed for Class B Surface conditions in accordance with Section 6.13 of the AASHTO LRFD Bridge Design Specifications 8th Edition.

PROHIBITED FIELD WELDING: No welding of any nature, other than indicated on the Plans, is to be performed without the written consent of the Designer, and then only in the manner and at the locations designated in the authorization.

WELDING SPECIFICATIONS: All welding and welding materials shall conform to "Joint Specification ANSI/AASHTO/AWS D1.5 Bridge Welding Code". Modification and additions as stated on the plans and Special Provision 4 (08), shall supersede the joint specifications.

WELDING PROCEDURE: Qualification tests of all welding procedures shall be completed by the Contractor and approved by the Engineer prior to the final approval of the shop drawings and welding procedure and start of fabrication.

DRAIN DETAILS: Foundry Note All drains shall be gray iron castings, ASTM A48, current edition, class 30A. Foundries shall cast at least two test bars from each day's production. These test bars shall be tested by the Division of Materials, or by the Foundries' Quality Control Unit who shall furnish actual test results for each date of manufacture or lot number. Drains shall be hot-dip galvanized in accordance with ASTM A123. Any area of damaged galvanizing shall be cleaned and painted with a galvanizing repair paint to comply with ASTM A780.

MATERIAL: ASTM or AASHTO Specifications as designated below shall govern the materials furnished
High Strength Bolts, Nuts, and Washers M164, Type 1 (Galvanized)
High Strength Low Alloy Structural Steel M270, Grade 50W
Shear Stud Connectors UNS G-1015, M169

The flange and web material, including splice plates, in longitudinal plate girders and all shapes and plates in cross-frames shall meet the longitudinal charpy v-notch toughness test applicable to zone 2 in accordance with the following:

Grade 50W (Up to 2 inch thickness) 25 ft-lbs at 40 degrees F
Grade 50W (Over 2 inches to 4 inch thickness) 30 ft-lbs at 40 degrees F

Sampling and testing procedures shall be in accordance with AASHTO T243, current edition, utilizing (H) frequency testing. When plate thickness exceeds 1½ inches, frequency of testing shall be (P).

SHEAR CONNECTORS: The minimum length of studs is 6 inches. Provide the necessary length to penetrate at least 2 inches above the bottom of slab. The "Lump Sum" bid for shear connectors shall be full payment for all necessary shear connectors, welding and welding material, and materials necessary to field weld or shop weld the shear connectors in place according to the Plans and Specifications.

If the contractor wishes to use something other than the stud shear connectors shown on the plans, the proposed arrangement shall be submitted for approval with the shop plans.

Studs shall be welded in accordance with the AWS Specification.

CLEANING AND PAINTING: Structural steel is to be painted in accordance with Section 607.03.23 of the Specifications. Contractors are hereby reminded that in accordance with Section 607.03.23, all steel surfaces to be painted, including exposed surfaces of connection plates, nuts, bolts, and washers, shall be blast cleaned to a near white condition in accordance with SSPC-SP10 immediately prior to being painted with the first coat of paint. All structural steel is to receive the first coat of paint (Prime Coat) in the shop prior to shipping. The Contractor is responsible for maintaining the first coat of paint throughout erections to prevent staining of the substructure. The Contractor will be responsible for removing any rust staining on the substructure due to failure to maintain the first coat.

DISPOSAL OF MATERIALS: All materials and debris removed from or beneath the bridge shall become the property of the Contractor and shall be removed from the right-of-way.

EXISTING PLANS: Existing plans are available through the Department. Reference drawing No. 4737.

CAMBER: Web plates shall be cut to provide for the camber of the girder. Provide for possible warpage due to extra heat in the top flange by virtue of the shear connectors. Girders which do not conform to plan camber and grade in the erected position shall be considered as requiring, at no additional cost to the Department, either an adjustment in depth of the concrete haunch over the steel supporting members, or a reworking of the girder camber to meet the plan grade and slab thickness. However, in no case shall the shear connectors be allowed to penetrate the slab less than two inches.

MILL TEST REPORTS: Notarized mill test reports shall be furnished in triplicate to the Department, showing that all material used in the structural steel conform to the requirements of the specifications.

IDENTIFICATION MARKING OF STEEL MEMBERS: Steel mill and fabricator identification markings for steel plates, shapes, or fabricated members shall be by metal tags, soapstone, or some other readily removable material, or shall be marked in an area of the completed member which will be encased or covered with concrete. Marking methods and locations are subject to approval of the Engineer.

Paint or wax based crayons shall not be used for marking.

HANDLING AND STORING OF STEEL MEMBERS: Steel members must not be gouged, dented, or allowed to rub against other members which would result in damage to the blast cleaned profile of the steel. Members shall be handled using softeners and slings instead of chokers and chains.

Members shall be stored in the fabrication shop or on the project site in such a manner as to be kept free and clean of all foreign substances such as grease, oil, mortar, concrete, chalk, crayon, paint, and dirt. All storage must be above ground and sloped to allow free drainage of melted snow, rainwater, and dew.

If stored for periods longer than three months, the members must be placed on metal supports. For periods of storage up to three months, members may be placed on clean, untreated, wood timbers.
Plate girders shall be stored with the web in the upright position.

Treated lumber or timber shall not be allowed to come in contact with the steel members.

JOINT WATERPROOFING AT ABUTMENTS: The joint between the abutment seats and superstructure and between the abutment wings and superstructure shall be waterproofed as detailed on these plans. Joint waterproofing shall consist of an asphalt prime coat, an asphalt mopping coat and two alternate layers of waterproofing membrane and asphalt mopping coats. The surface of the concrete for a distance of at least 13 inches each side of the joint shall be treated with an asphalt prime coat and permitted to set thoroughly before the first mop coat is applied. A mop coat of hot asphalt shall then be applied and a strip of membrane 12 inches wide pressed into it and centered about the joint allowing some slack material across the joint for movement of the joint. This shall be followed with a second mopping of hot asphalt, covering the membrane and remaining primed surface. A second strip of membrane 24 inches wide shall be pressed into the mop coat and centered over the joint, again allowing some slack material for joint movement. A final mopping of hot asphalt completely covering the membrane and lapping onto the concrete shall then be applied. Asphalt primer, asphalt mop coat and waterproofing membrane shall comply with section 808 of the standard specifications.

The cost of this work, including all materials, labor, equipment, tools and incidentals necessary to complete the work is to be included in the unit price bid for class "AA" concrete.

WATERPROOFING MEMBRANE: Use a sprayable/rollable elastomeric polyurethane waterproofing membrane. MasterSeal HLM 5000 or approved equivalent.

VERIFYING FIELD CONDITIONS: Plan dimensions and details relative to the existing structure are subject to nominal construction variations. It shall be the Contractor's responsibility to verify such dimensions and details in the field and make the necessary approved adjustments prior to construction or ordering of materials. Such variations shall not be cause for additional compensation for a change in the scope of the work; However the Contractor will be paid for the quantity actually furnished at the unit price bid for the work. In addition, the overrun and underrun formulas may be applied to appropriate repairs provided that the requirement of Article 104.02.02 of the Standard Specifications are satisfied.

| REVISION | DATE |
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| DATE: 09/20/2018 | CHECKED BY |
| DESIGNED BY: D. Broekhuizen | J. Musch |
| DETAILED BY: D. Broekhuizen | J. Musch |

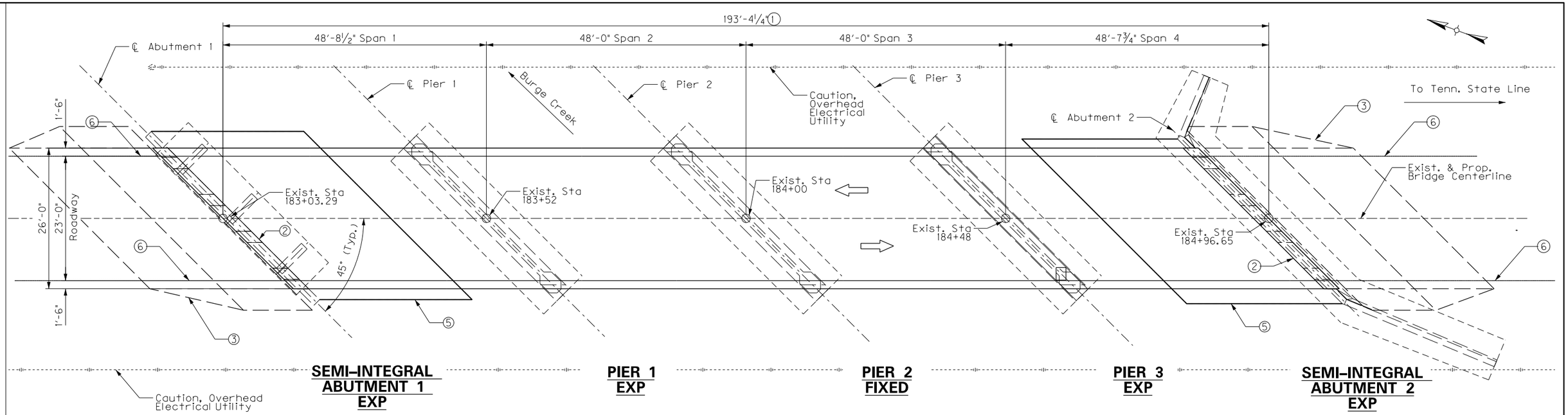
**Commonwealth of Kentucky**
**DEPARTMENT OF HIGHWAYS**

COUNTY
**TRIGG**

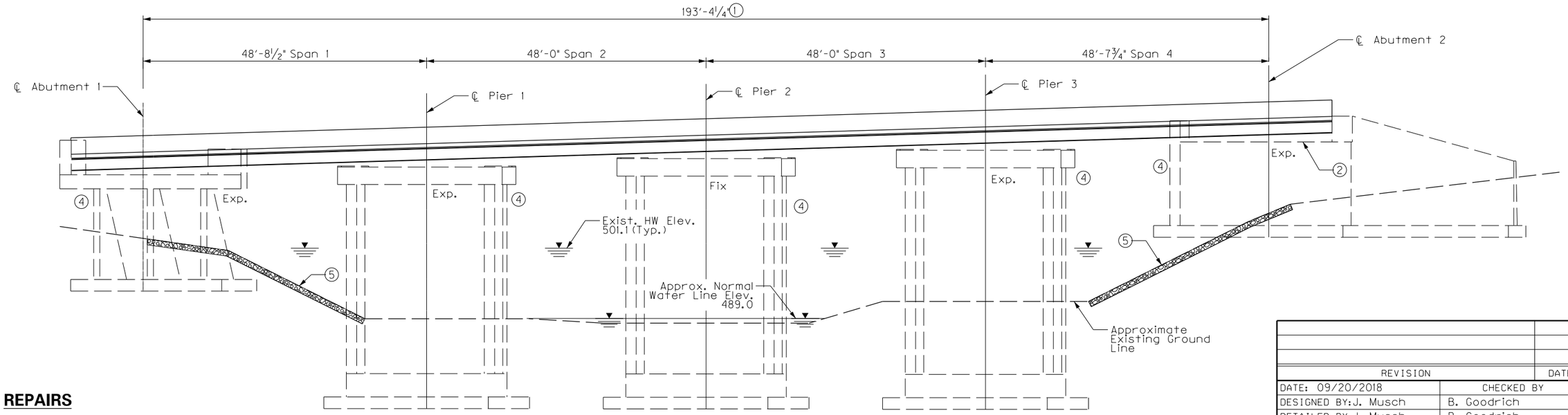
| ROUTE | CROSSING |
|---|---|
| KY 139 | BURGE CREEK |

## *GENERAL NOTES*

| BRIDGE NUMBER | PREPARED BY | SHEET NO. |
|---|---|---|
| 111B00012N | AECOM / BRIDGING KENTUCKY | S2 |
| | | DRAWING NO. 27826 |



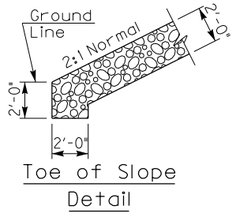

**PLAN**




**ELEVATION**

## REPAIRS

1. Superstructure Replacement
2. Rebuild/Widen Abument Seat
3. Geotextile Reinforcement at Abutments
4. Substructure Concrete Repairs
5. Dry Cyclopean Stone Rip-Rap Underlain with Geotextile Fabric Type 1, Incidental to Slope Protection.
6. Remove and replace existing Guardrail (50 LF each quadrant)




Toe of Slope Detail

Ext. HW El.

Notes:
1) Elevation and Stationing taken from existing 1931 plans.

| REVISION | DATE |
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| DATE: 09/20/2018 | CHECKED BY |
| DESIGNED BY: J. Musch | B. Goodrich |
| DETAILED BY: J. Musch | B. Goodrich |

**Commonwealth of Kentucky**
**DEPARTMENT OF HIGHWAYS**

COUNTY: **TRIGG**

ROUTE: **KY 139** | CROSSING: **BURGE CREEK**

***PLAN AND ELEVATION***

BRIDGE NUMBER: **111B00012N**

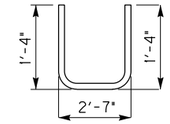
PREPARED BY: AECOM / BRIDGING KENTUCKY

SHEET NO. S3

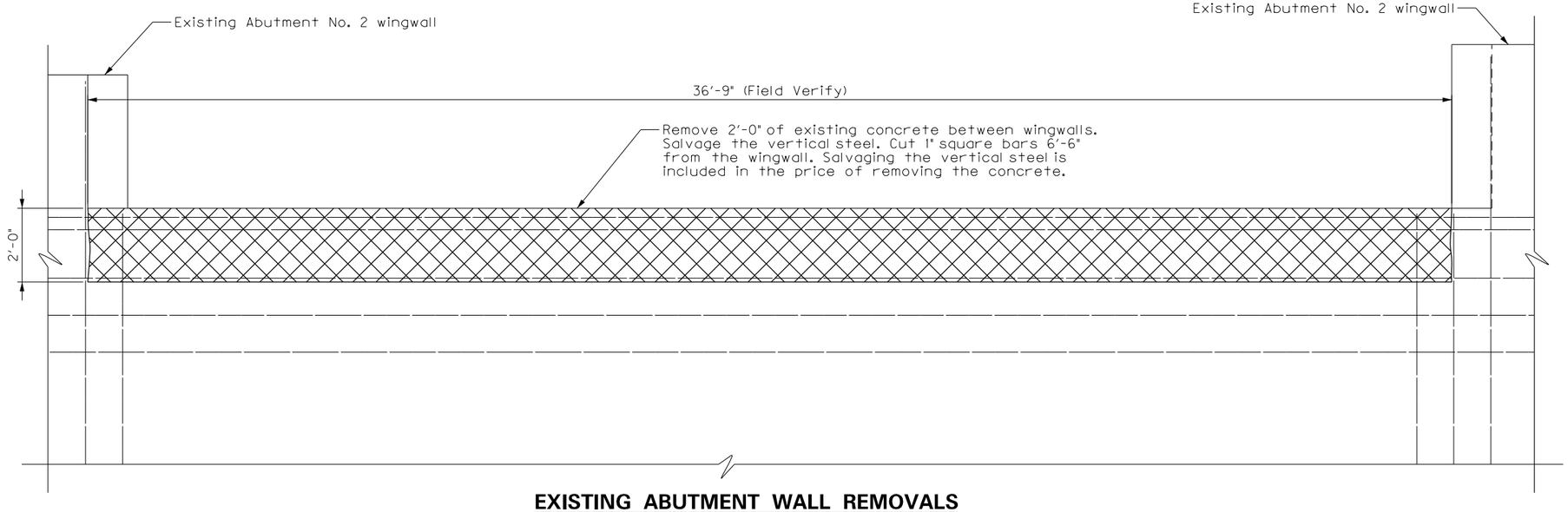
DRAWING NO. **27826**

## REINFORCEMENT – ABUTMENT

| MARK | TYPE | SIZE |
|---|---|---|
| A1e | Str. | 6 |
| A2e | Str. | 9 |
| A3e | 2 | 4 |

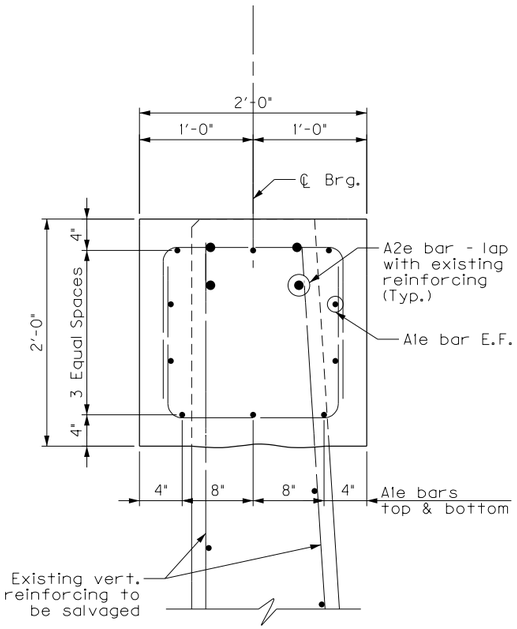



**TYPE 2**
Bar A3e

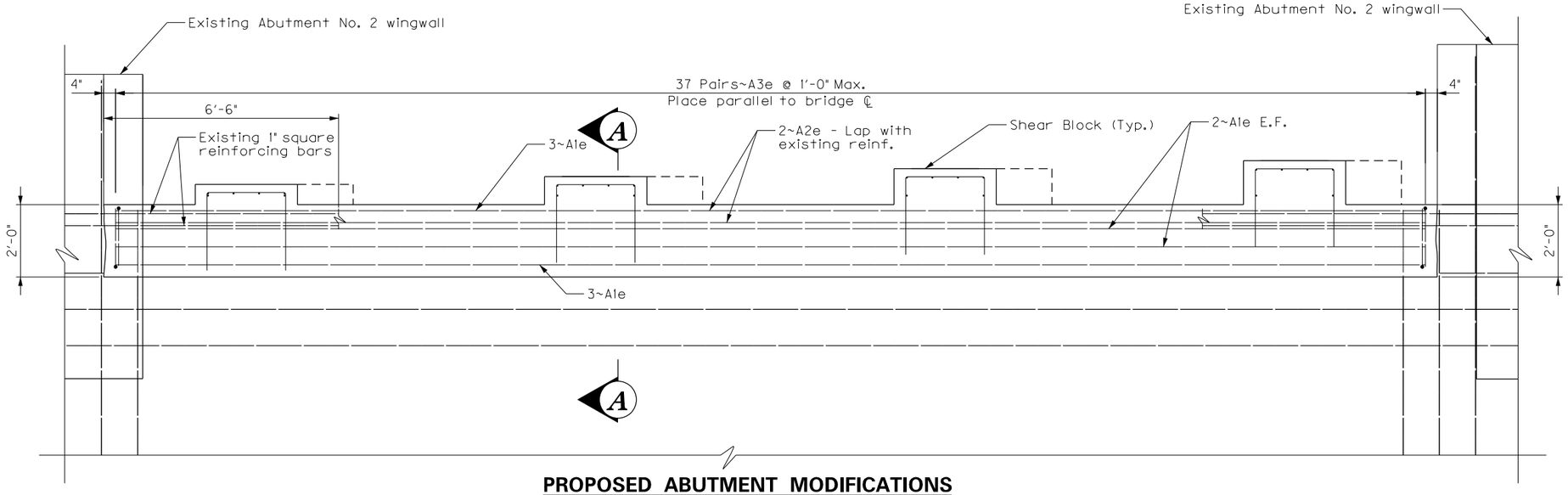



## EXISTING ABUTMENT WALL REMOVALS

- Denotes Removals




## SECTION A–A




## PROPOSED ABUTMENT MODIFICATIONS

See Diaphragm Details for Shear Block Reinforcement

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| DATE: 09/20/2018 | CHECKED BY |
| DESIGNED BY: D. BROEKHUIZEN | B. GOODRICH |
| DETAILED BY: D. BROEKHUIZEN | B. GOODRICH |

**Commonwealth of Kentucky**
**DEPARTMENT OF HIGHWAYS**

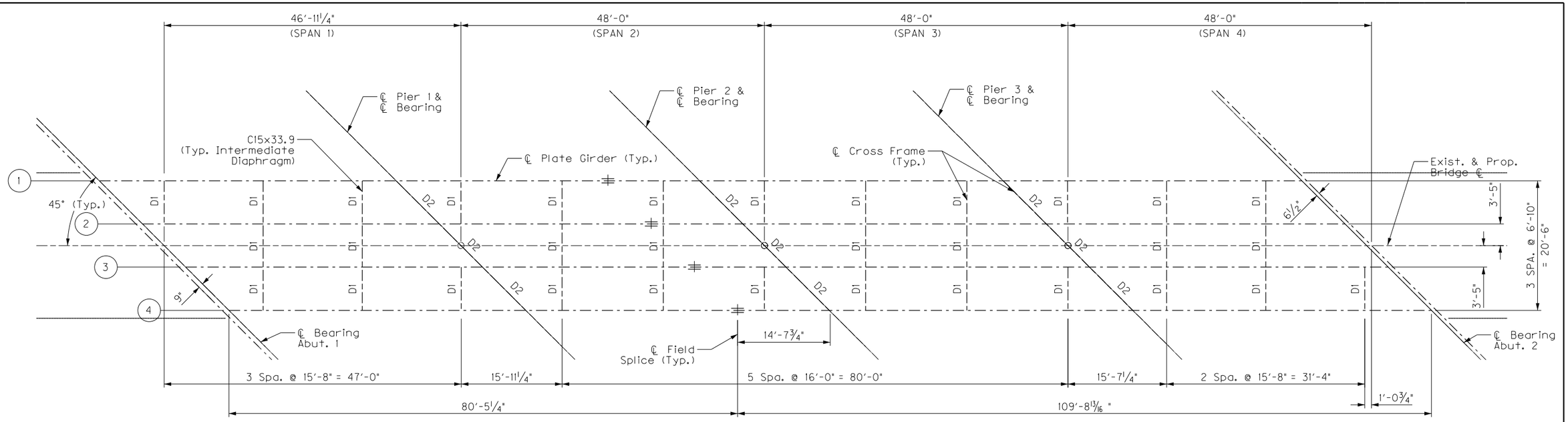
COUNTY
**TRIGG**

ROUTE
**KY 139**

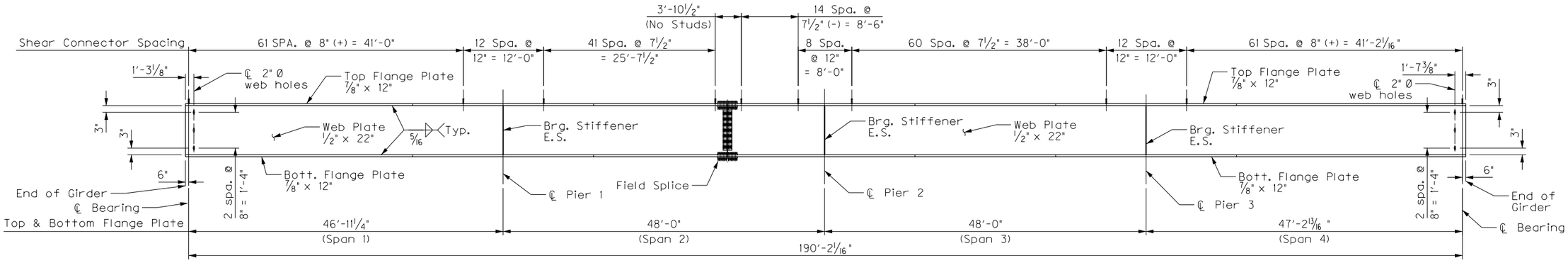
CROSSING
**BURGE CREEK**

***ABUTMENT 2 DETAILS***

| BRIDGE NUMBER | PREPARED BY | SHEET NO. |
|---|---|---|
| 111B00012N | AECOM / BRIDGING KENTUCKY | S4 |
| | | DRAWING NO. 27826 |

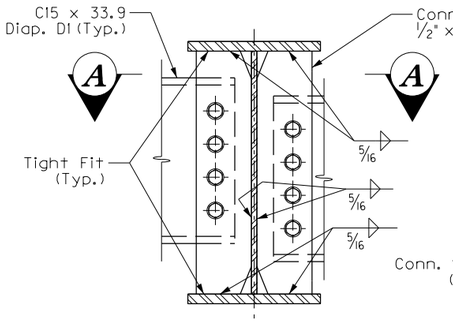



## GIRDER PRELIMINARY PLAN LAYOUT



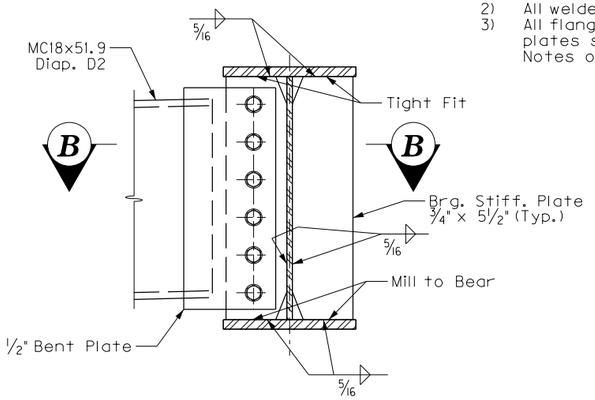

## GIRDER ELEVATION DETAIL

Notes:
1) End of girders and bearing stiffeners are to be vertical at full dead load at 60° F. All intermediate cross-frame connection plates shall be normal to the flanges.
2) All welded shop splices in flange plates shall be made prior to welding flange plates to web plates.
3) All flange and web material, including splice plates, in longitudinal plate girders and all shapes and plates shall meet the longitudinal charpy v-notch toughness test applicable to Zone 2. See General Notes on Sheet S2.

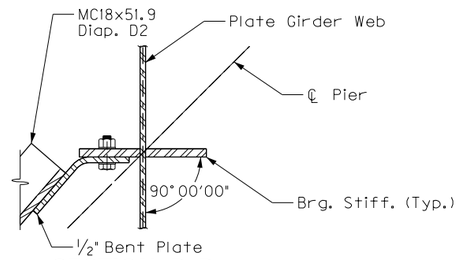



## SECTION A–A

## CONNECTION STIFFENER DETAILS




## BEARING STIFFENER DETAILS




## SECTION B–B

| REVISION | DATE |
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| DATE: 09/20/2018 | CHECKED BY |
| DESIGNED BY: C. Garrett | T. Doan |
| DETAILED BY: C. Garrett | T. Doan |

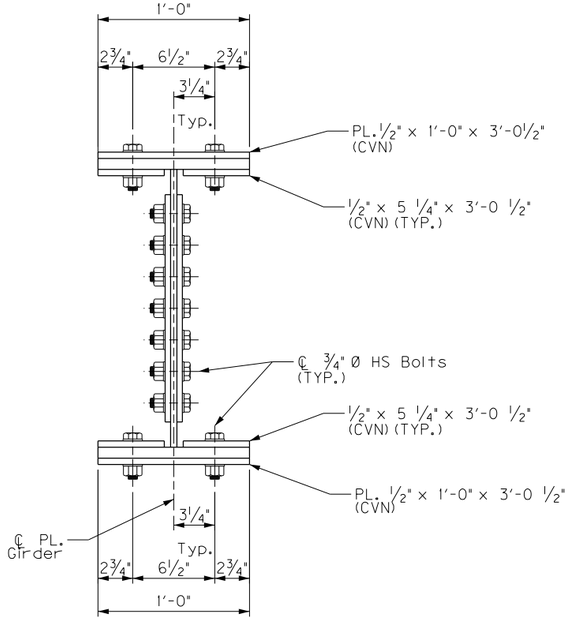
**Commonwealth of Kentucky**
**DEPARTMENT OF HIGHWAYS**

COUNTY: **TRIGG**

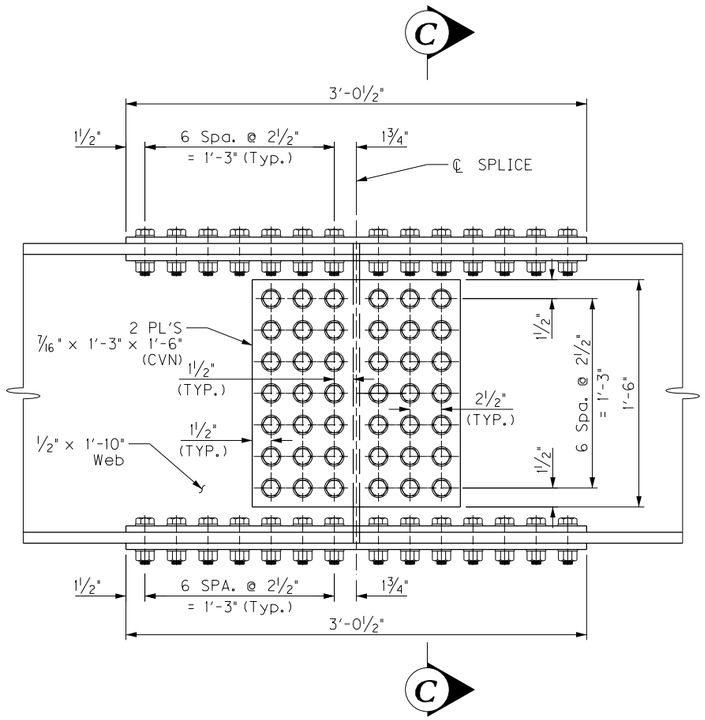
ROUTE: **KY 139** | CROSSING: **BURGE CREEK**

# *STRUCTURAL STEEL DETAILS*

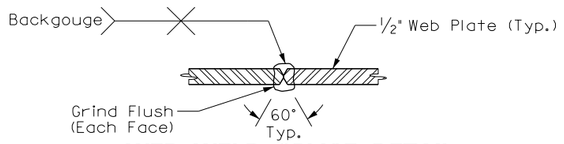
| BRIDGE NUMBER | PREPARED BY | SHEET NO. |
|---|---|---|
| 111B00012N | AECOM / BRIDGING KENTUCKY | S5 |
| | | DRAWING NO. 27826 |




## SECTION C–C

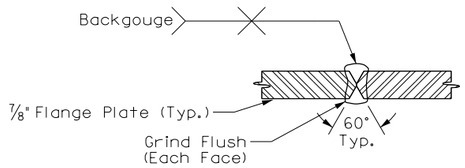



## ELEVATION




## WEB WELD SPLICE DETAIL

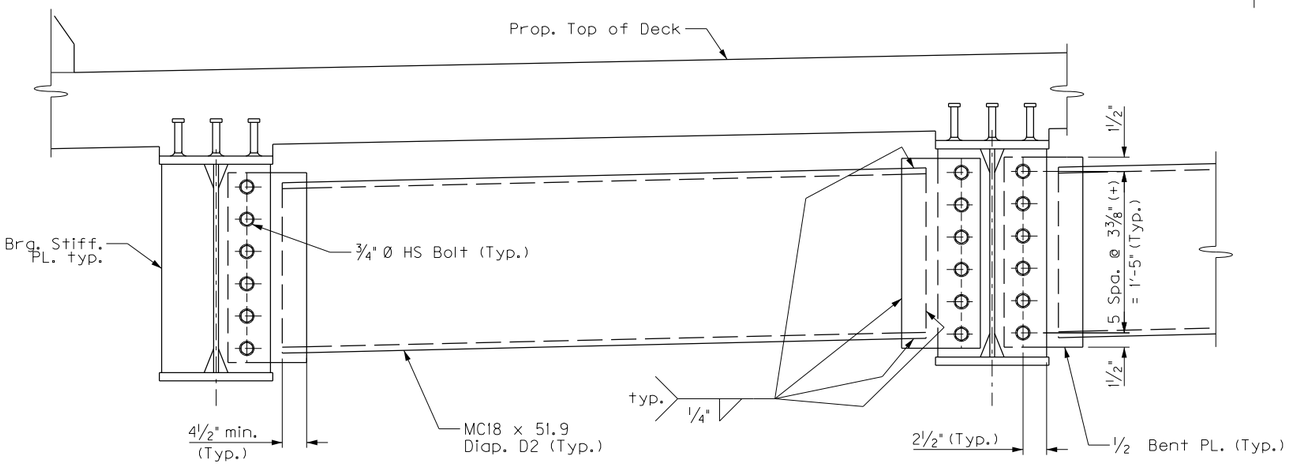
(Shop Flange Splice)
AWS Prequalified, full penetration, fully automatic, submerged arc groove weld



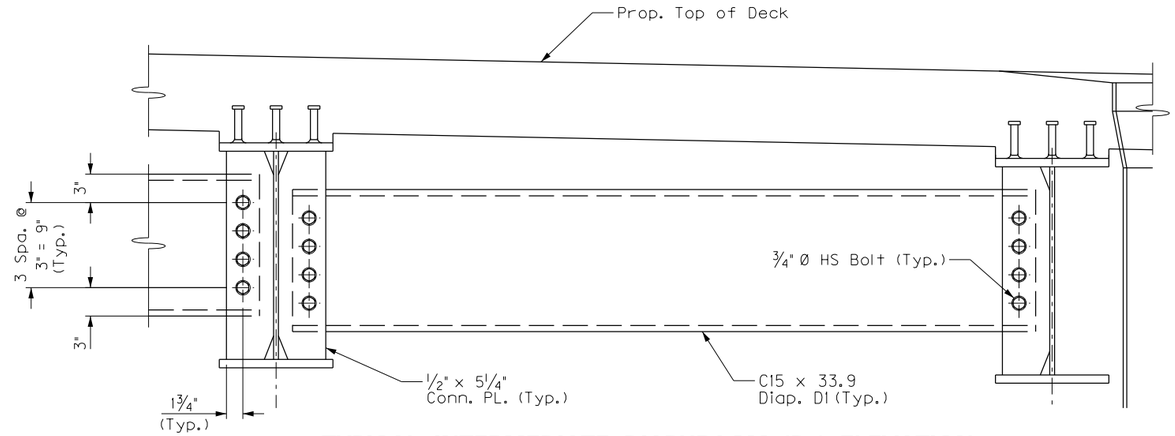

## FLANGE WELD SPLICE DETAIL

(Shop Flange Splice)
AWS Prequalified, full penetration, fully automatic, submerged arc groove weld

## GIRDER FIELD SPLICE DETAILS




## TYPICAL PIER DIAPHRAGM (D2) ELEVATION




## TYPICAL INTERMEDIATE DIAPHRAGM (D1) ELEVATION

Notes:
1) All shop splices in flange or web plates shall be made prior to welding flange plates to web plates.
2) All grinding shall be parallel to the direction of stress.
3) Web splices shall be minimum of 1'-0" clear of shop flange splices, cross frame connections, and bearing stiffener plates.
4) See Sheet S5 for location of girder diaphragms.
5) AASHTO M270 Grade 50W steel shall be used for all diaphragms, connection plates, and bearing stiffeners, unless otherwise noted.
6) Fasteners shall be ASTM F3125 Grade A325 Type 1, mechanically galvanized bolts. Bolts ¾" dia., holes 13/16" dia. unless otherwise noted.
7) All diaphragms shall be installed as steel is erected and secured with erection pins and bolts except as otherwise noted. Individual diaphragms at supports may be temporarily disconnected to install anchor rods.

| REVISION | DATE |
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| DATE: 09/20/2018 | CHECKED BY |
| DESIGNED BY: G. Garrett | T. Doan |
| DETAILED BY: G. Garrett | T. Doan |

**Commonwealth of Kentucky**
**DEPARTMENT OF HIGHWAYS**

COUNTY: **TRIGG**

ROUTE: **KY 139** | CROSSING: **BURGE CREEK**

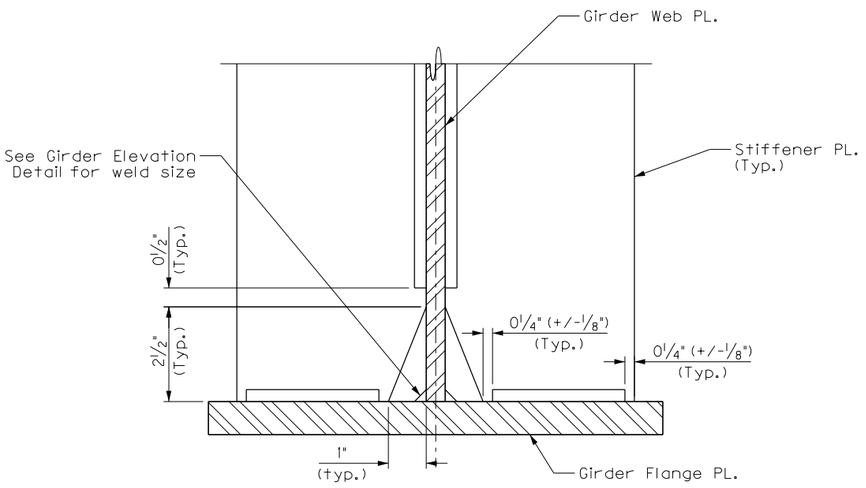
# *STRUCTURAL STEEL DETAILS*

BRIDGE NUMBER: **111B00012N**

PREPARED BY: AECOM — BRIDGING KENTUCKY

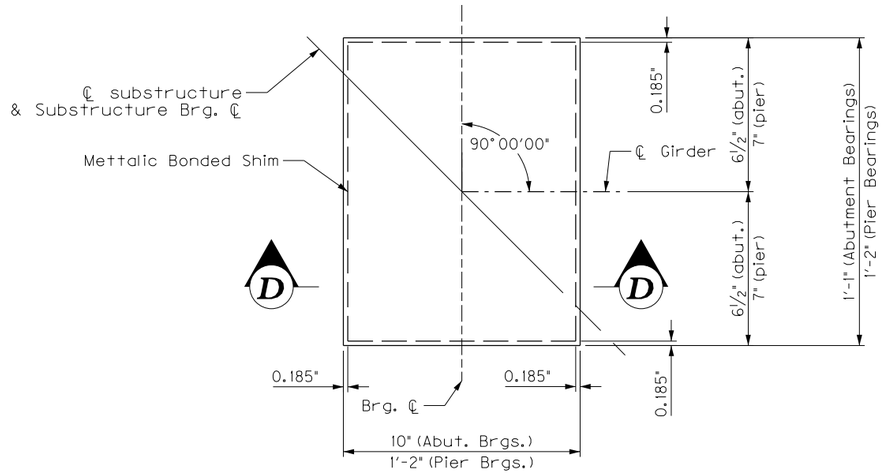
SHEET NO.: S6

DRAWING NO.: 27826

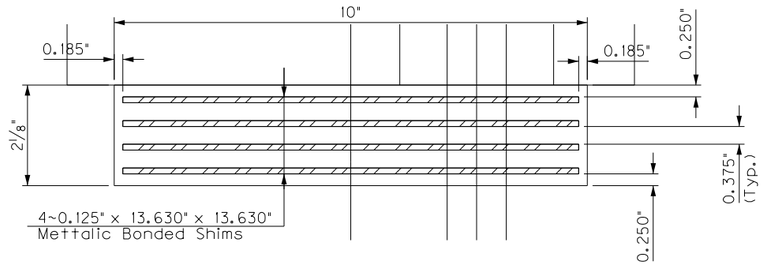



## WELD TERMINATION DETAIL

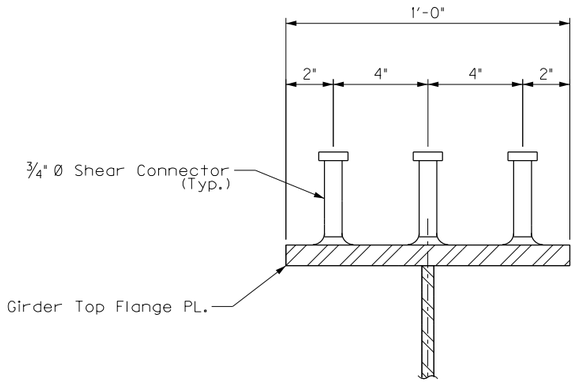
All stiffener plate welds to be terminated as shown




## ELASTOMERIC BEARING PLAN




## ABUTMENT BEARING SECTION D–D

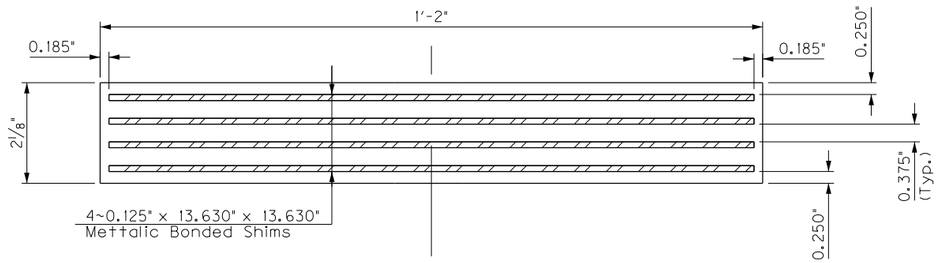



## SHEAR CONNECTOR DETAIL

Use 3/4" Ø granular or solid flux filled headed studs. Automatically end weld. (See Girder Elevation Detail for spacing)

Do not install shear studs on flange splice plates.

See General Notes for requirements.




## PIER BEARING SECTION D–D

# GENERAL NOTES

SPECIFICATIONS: Fabricate the Elastomeric Bearing Pads to the design and dimensions as shown on these drawings and to AASHTO LRFD Bridge Construction Specifications, Section 18.

Ensure bearings are low temperature Grade 3 with durometer hardness of 50 and subjected to the load testing requirements corresponding to Design Method A.

Include the price of the Elastomeric Bearing Pads in the bid for the beams.

| REVISION | DATE |
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| DATE: 09/20/2018 | CHECKED BY |
| DESIGNED BY: G. Garrett | T. Doan |
| DETAILED BY: G. Garrett | T. Doan |

Commonwealth of Kentucky
DEPARTMENT OF HIGHWAYS

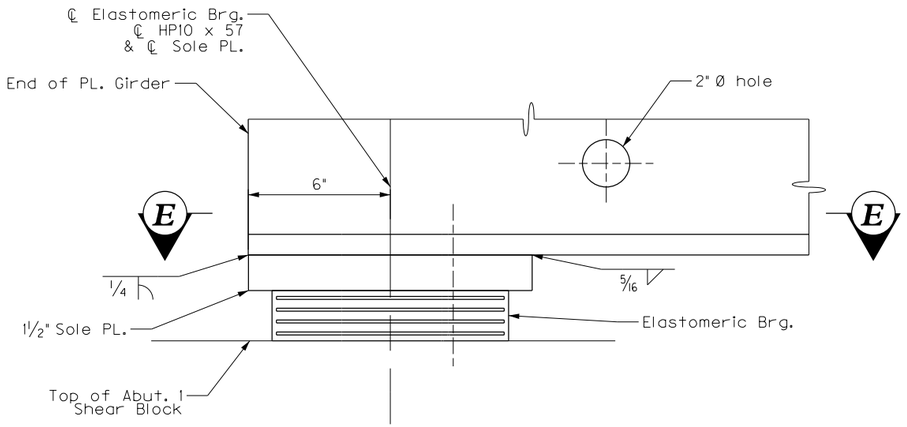
COUNTY: TRIGG

ROUTE: KY 139

CROSSING: BURGE CREEK

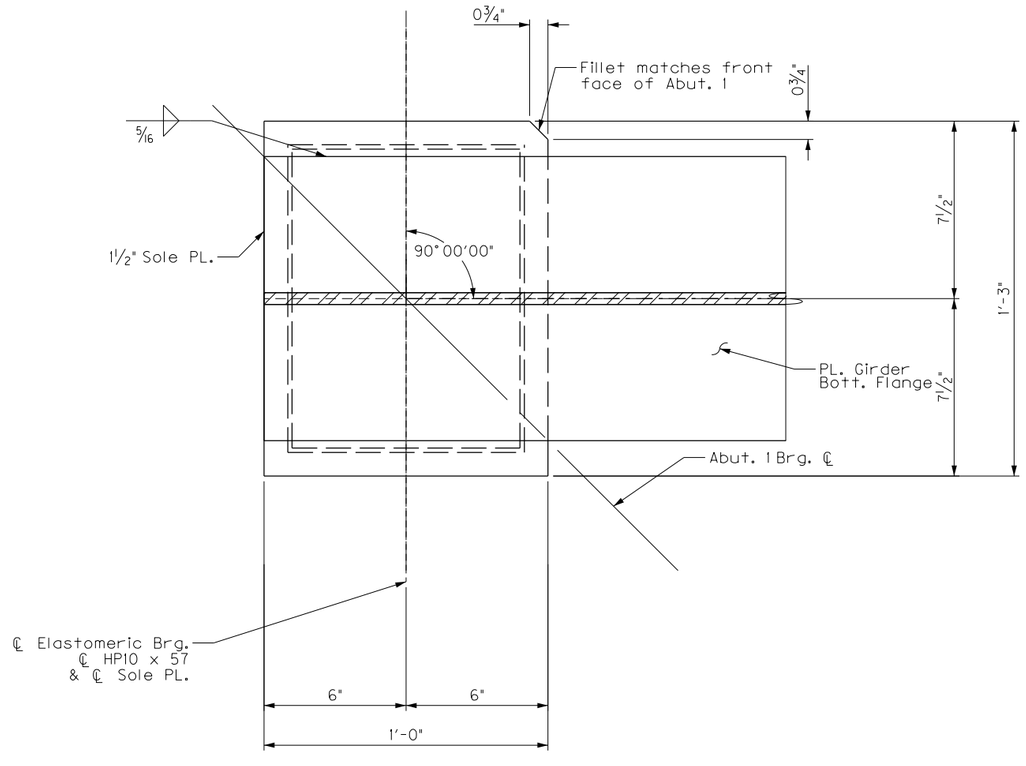
**STRUCTURAL STEEL DETAILS**

| BRIDGE NUMBER | PREPARED BY | SHEET NO. |
|---|---|---|
| 111B00012N | AECOM / BRIDGING KENTUCKY | S7 |
| | | DRAWING NO. 27826 |

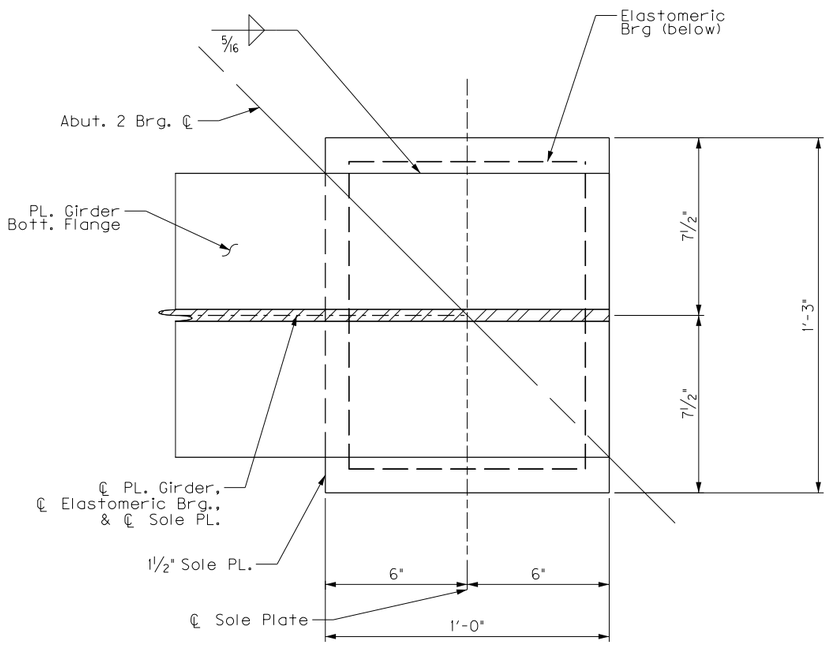



## ABUTMENT 1 PEDESTAL & BEARING ELEVATION

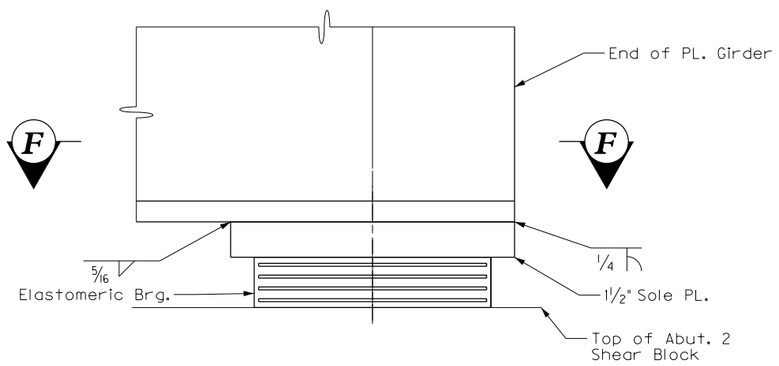
Detail top of HP and Stiffener Plate as required
to provide the HP plumb under full dead load
(not including FWS).




## SECTION E–E




## SECTION F–F




## ABUTMENT 2 BEARING ELEVATION

| REVISION | DATE |
|---|---|
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| DATE: 09/20/2018 | CHECKED BY |
| DESIGNED BY: G. Garrett | T. Doan |
| DETAILED BY: G. Garrett | T. Doan |

**Commonwealth of Kentucky**
**DEPARTMENT OF HIGHWAYS**

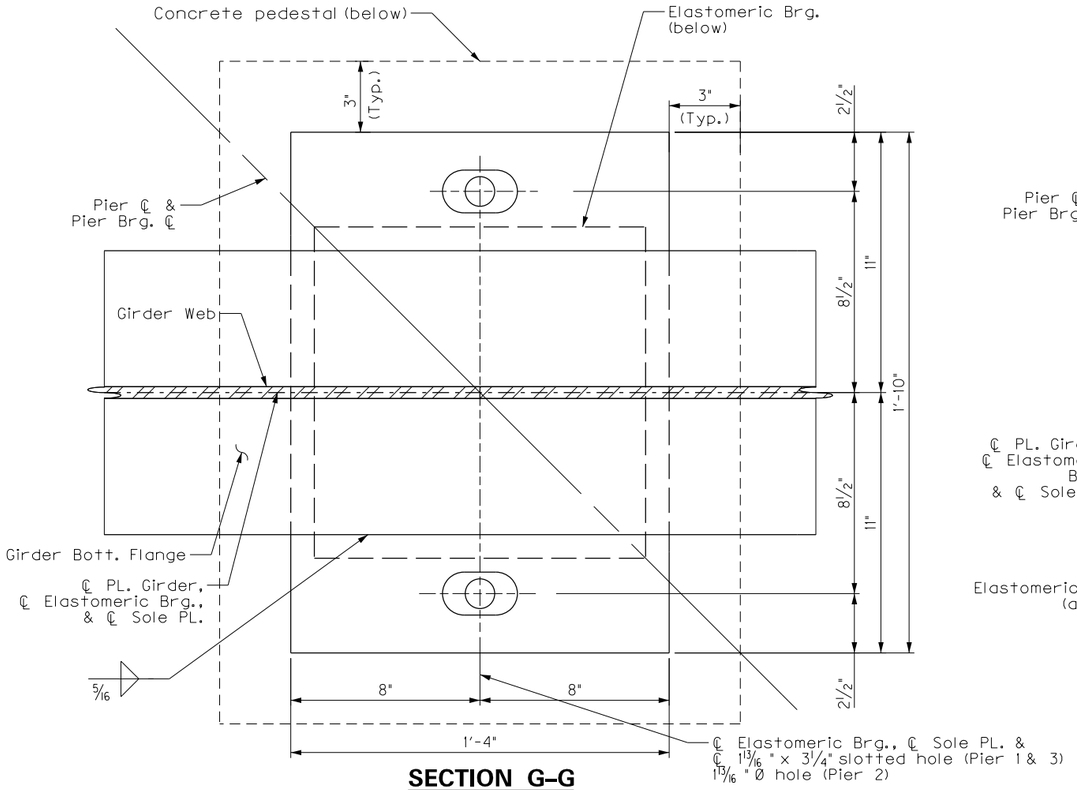
COUNTY: **TRIGG**

ROUTE: **KY 139** | CROSSING: **BURGE CREEK**

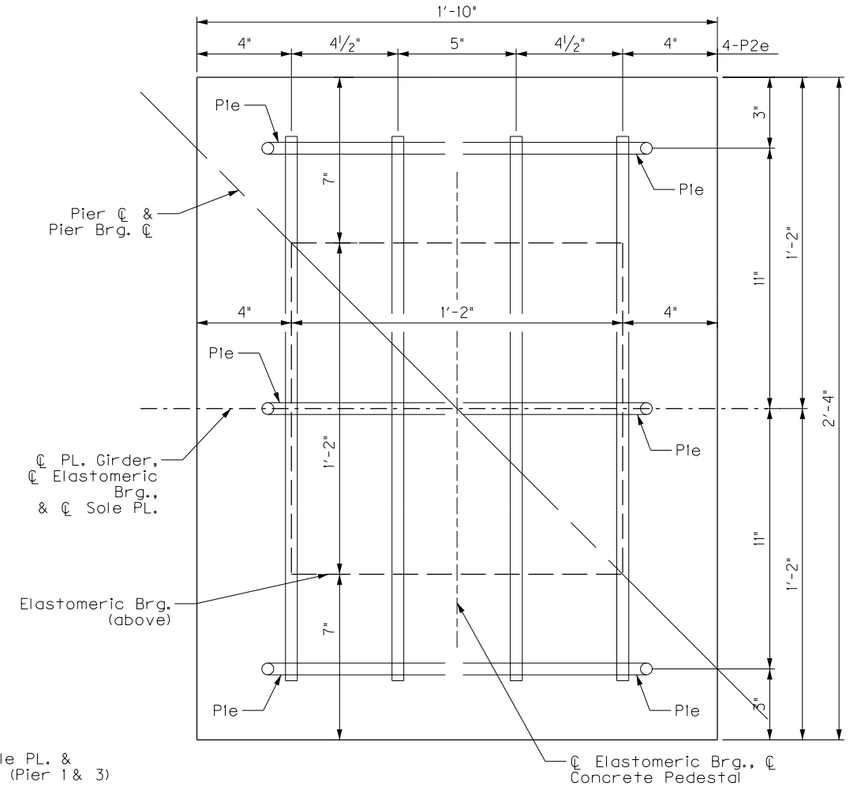
# *STRUCTURAL STEEL DETAILS*

| BRIDGE NUMBER | PREPARED BY | SHEET NO. |
|---|---|---|
| 111B00012N | AECOM / BRIDGING KENTUCKY | S8 |
| | | DRAWING NO. 27826 |

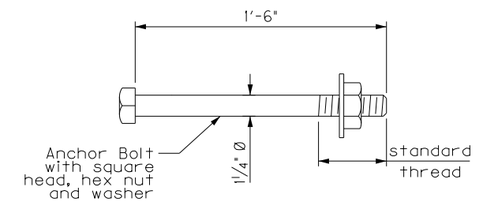
FILE NAME: C:\PW_WORKING\D0128153\IX17_BORDER.DGN
USER: dan.broekhuizen
DATE PLOTTED: September 19, 2018
E-SHEET NAME:
Power GEOPAK v8.11.9.832




## SECTION G-G

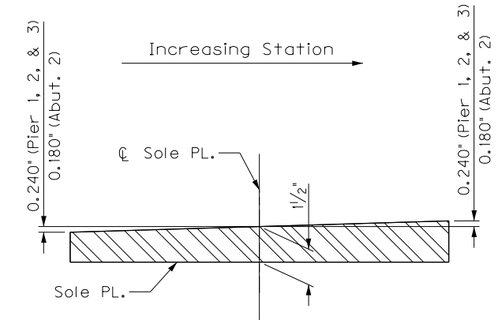



## CONCRETE PEDESTAL, PLAN VIEW

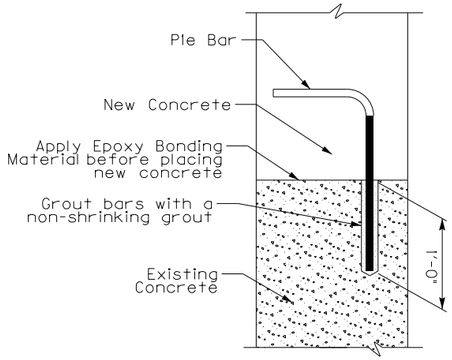



## ANCHOR BOLT DETAIL

ASTM F1554, Grade 55
(40 required)

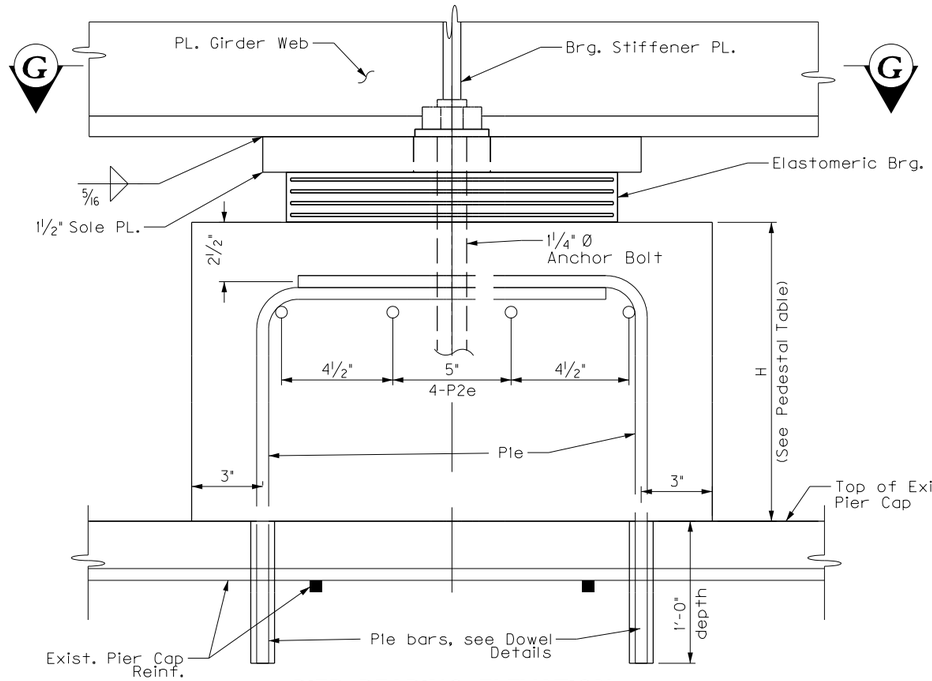



## SOLE PLATE BEVEL DETAIL




## DOWEL DETAILS

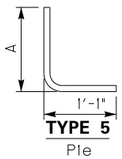
NOTE: The cost of drilling holes, grouting, and epoxy bonding material shall be incidental to the cost of Class "AA" Concrete.




## PIER BEARING ELEVATION

| Girder | H dim. | Mark | Type | Size | A dim. |
|---|---|---|---|---|---|
| 1 | 7 1/4" | Ple | 5 | 4 | 1'-4½" |
| 2 | 11 5/16" | Ple | 5 | 4 | 1-8½" |
| 3 | 1'-1 3/4" | Ple | 5 | 4 | 1-11" |
| 4 | 1'-2 9/16" | Ple | 5 | 4 | 2'-0" |
| | | P2e | Str. | 4 | - |

## PIER 1,2, & 3 PEDESTAL REINFORCEMENT TABLE




TYPE 5
Ple

| REVISION | DATE |
|---|---|
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| DATE: 09/20/2018 | CHECKED BY |
| DESIGNED BY: G. Garrett | T. Doan |
| DETAILED BY: G. Garrett | T. Doan |

Commonwealth of Kentucky
DEPARTMENT OF HIGHWAYS

COUNTY: TRIGG

ROUTE: KY 139

CROSSING: BURGE CREEK

# STRUCTURAL STEEL DETAILS

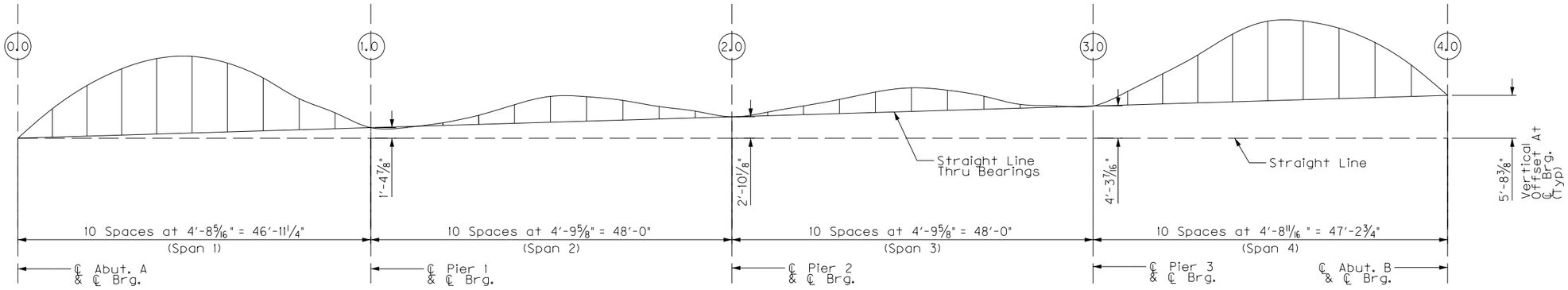
BRIDGE NUMBER: 111B00012N

PREPARED BY: AECOM

BRIDGING KENTUCKY

SHEET NO. S9

DRAWING NO. 27826




## GIRDERS 1 – 4

Note:

Vertical offsets are based on +3% grade.

| | | 0.0 | 0.1 | 0.2 | 0.3 | 0.4 | 0.5 | 0.6 | 0.7 | 0.8 | 0.9 | 1.0 | 1.1 | 1.2 | 1.3 | 1.4 | 1.5 | 1.6 | 1.7 | 1.8 | 1.9 | 2.0 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Girders 1-4 | Dead Load Steel | 0.000 | 0.028 | 0.049 | 0.065 | 0.073 | 0.073 | 0.066 | 0.052 | 0.034 | 0.015 | 0.000 | 0.000 | 0.003 | 0.010 | 0.017 | 0.022 | 0.023 | 0.020 | 0.013 | 0.006 | 0.000 |
| | Dead Load Slab | 0.000 | 0.143 | 0.253 | 0.330 | 0.372 | 0.374 | 0.336 | 0.266 | 0.173 | 0.077 | 0.000 | -0.010 | 0.015 | 0.052 | 0.092 | 0.117 | 0.123 | 0.104 | 0.071 | 0.031 | 0.000 |
| | Dead Load Barriers | 0.000 | 0.023 | 0.039 | 0.051 | 0.058 | 0.058 | 0.052 | 0.042 | 0.027 | 0.012 | 0.000 | -0.002 | 0.002 | 0.008 | 0.014 | 0.019 | 0.019 | 0.016 | 0.011 | 0.005 | 0.000 |
| | Total Camber | 0.000 | 0.194 | 0.341 | 0.445 | 0.503 | 0.505 | 0.454 | 0.360 | 0.234 | 0.103 | 0.000 | -0.012 | 0.019 | 0.070 | 0.124 | 0.158 | 0.165 | 0.140 | 0.095 | 0.042 | 0.000 |
| | | 2.0 | 2.1 | 2.2 | 2.3 | 2.4 | 2.5 | 2.6 | 2.7 | 2.8 | 2.9 | 3.0 | 3.1 | 3.2 | 3.3 | 3.4 | 3.5 | 3.6 | 3.7 | 3.8 | 3.9 | 4.0 |
| | Dead Load Steel | 0.000 | 0.003 | 0.009 | 0.016 | 0.021 | 0.023 | 0.021 | 0.015 | 0.008 | 0.002 | 0.000 | 0.011 | 0.028 | 0.045 | 0.061 | 0.071 | 0.073 | 0.066 | 0.051 | 0.029 | 0.000 |
| | Dead Load Slab | 0.000 | 0.014 | 0.048 | 0.083 | 0.110 | 0.119 | 0.109 | 0.080 | 0.042 | 0.009 | 0.000 | 0.056 | 0.142 | 0.232 | 0.316 | 0.367 | 0.380 | 0.344 | 0.267 | 0.149 | 0.000 |
| | Dead Load Barriers | 0.000 | 0.002 | 0.008 | 0.013 | 0.017 | 0.019 | 0.017 | 0.013 | 0.007 | 0.002 | 0.000 | 0.009 | 0.022 | 0.036 | 0.049 | 0.057 | 0.059 | 0.054 | 0.042 | 0.023 | 0.000 |
| | Total Camber | 0.000 | 0.019 | 0.065 | 0.111 | 0.148 | 0.161 | 0.147 | 0.108 | 0.056 | 0.012 | 0.000 | 0.075 | 0.191 | 0.313 | 0.426 | 0.495 | 0.513 | 0.463 | 0.359 | 0.201 | 0.000 |

## DEAD LOAD CAMBER DIAGRAM

(Ordinate values are in inches)

| REVISION | DATE |
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| DATE: 09/20/2018 | CHECKED BY |
| DESIGNED BY: T. DOAN | B. GOODRICH |
| DETAILED BY: T. DOAN | B. GOODRICH |

Commonwealth of Kentucky
DEPARTMENT OF HIGHWAYS

COUNTY: TRIGG

ROUTE: KY 139

CROSSING: BURGE CREEK

**CAMBER DIAGRAM**

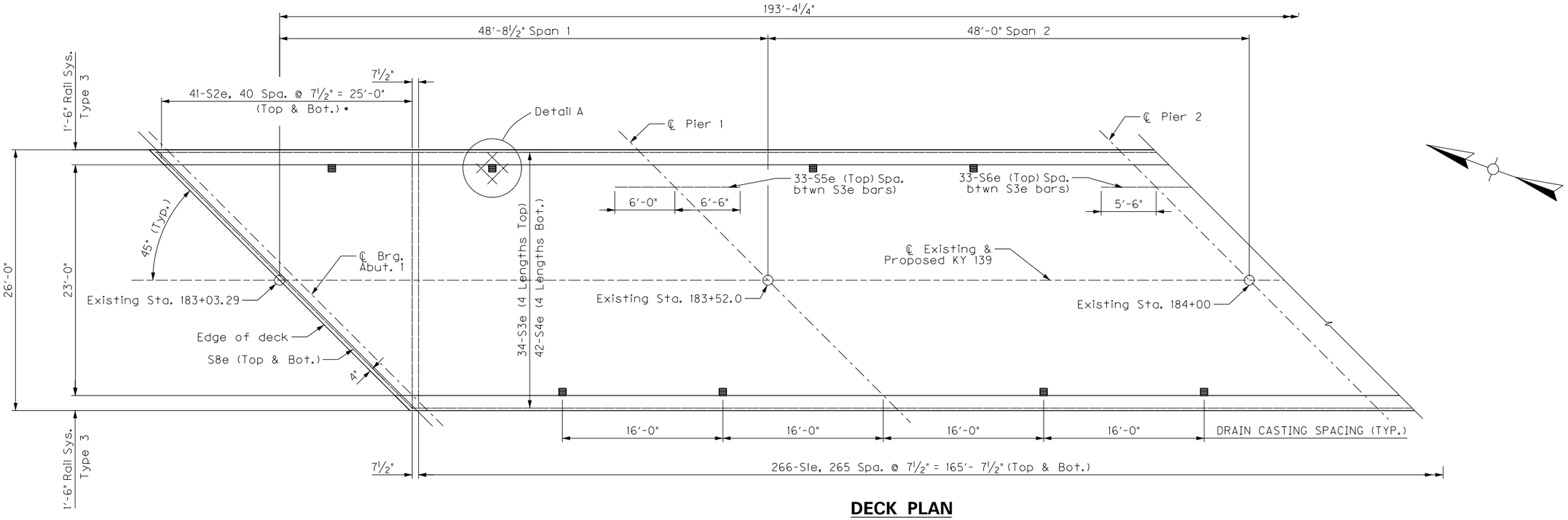
BRIDGE NUMBER: 111B00012N

PREPARED BY: AECOM

BRIDGING KENTUCKY

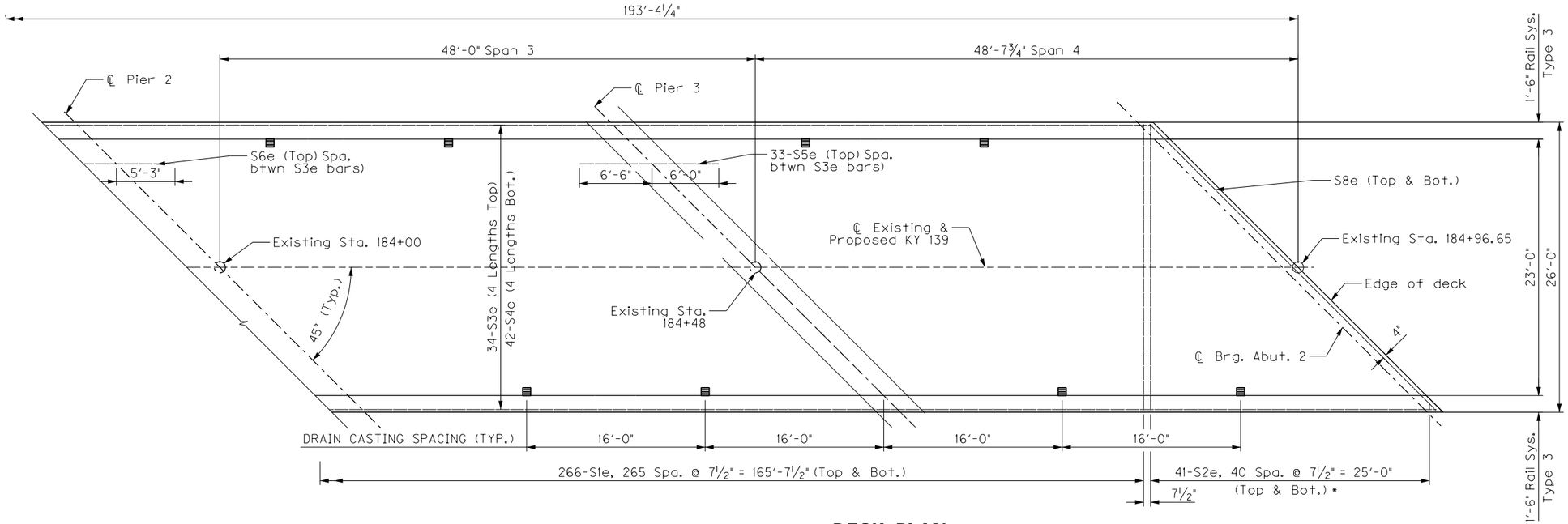
SHEET NO. S10

DRAWING NO. 27826




## DECK PLAN

* Cut Bars in the Field Per Cutting Diagram On Sheet S2




## DECK PLAN

| Min. Long. Lap Length | |
|---|---|
| No. 4 bars | 1'-11" |
| No. 5 bars | 2'-7" |
| No. 6 bars | 3'-7" |

| REVISION | DATE |
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|---|---|
| DATE: 09/20/2018 | CHECKED BY |
| DESIGNED BY: J. Musch | B. GOODRICH |
| DETAILED BY: J. Musch | B. GOODRICH |

**Commonwealth of Kentucky**
**DEPARTMENT OF HIGHWAYS**

COUNTY: **TRIGG**

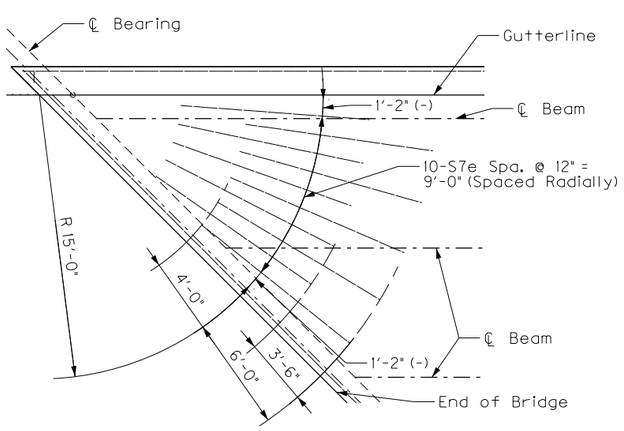
ROUTE: **KY 139** | CROSSING: **BURGE CREEK**

***SUPERSTRUCTURE DETAILS***

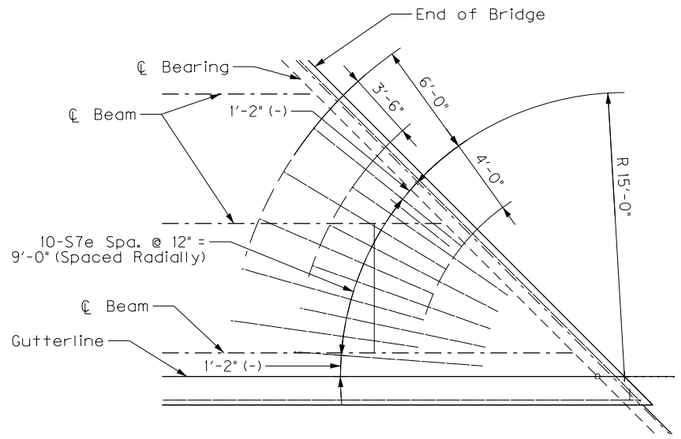
| BRIDGE NUMBER | PREPARED BY | SHEET NO. |
|---|---|---|
| 111B00012N | AECOM / BRIDGING KENTUCKY | S11 |
| | | DRAWING NO. 27826 |

## REINFORCEMENT – DECK

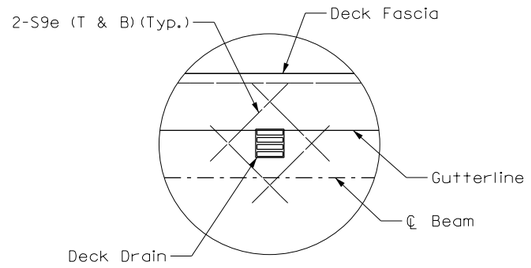
| MARK | TYPE | SIZE |
|---|---|---|
| S1e | Str. | 6 |
| S2e | Str. | 6 |
| S3e | Str. | 4 |
| S4e | Str. | 5 |
| S5e | Str. | 5 |
| S6e | Str. | 5 |
| S7e | Str. | 6 |
| S8e | Str. | 6 |
| S9e | Str. | 5 |




**NORTHEAST CORNER REINFORCEMENT DETAIL**

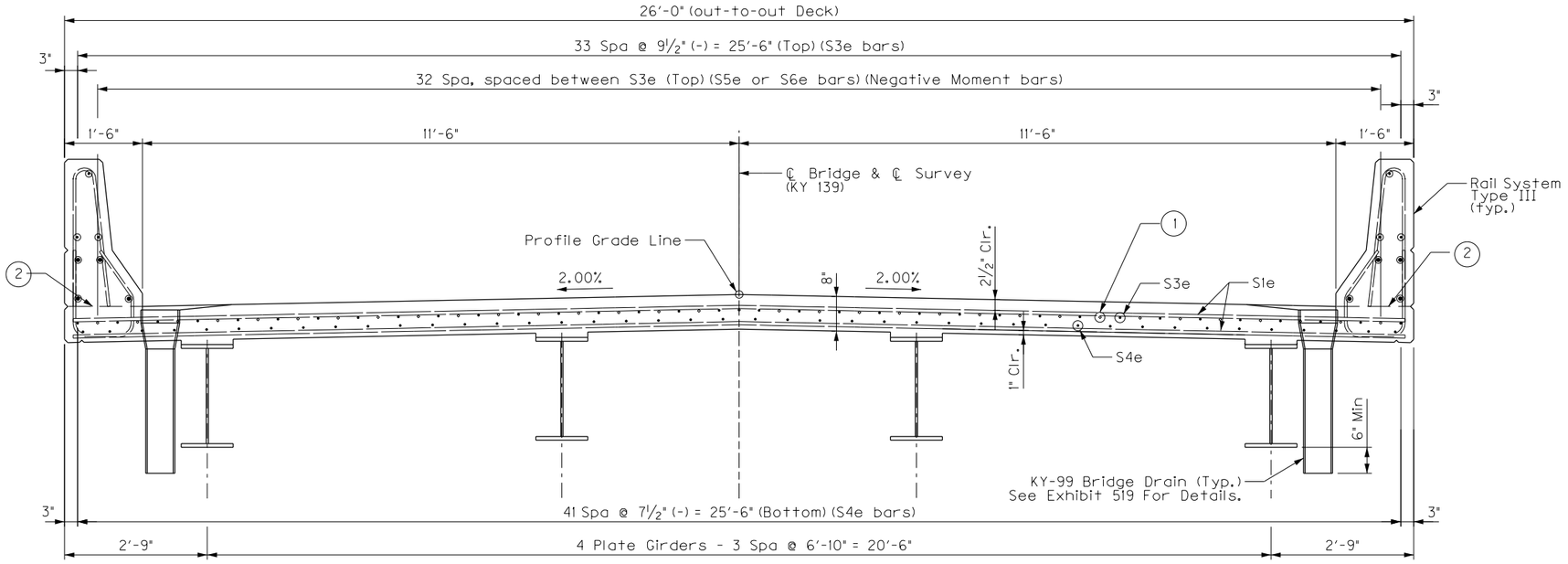



**SOUTHWEST CORNER REINFORCEMENT DETAIL**




**DETAIL A**

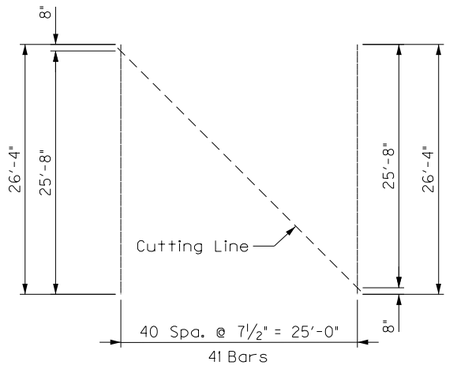
Place the corner reinforcement beneath the longitudinal and transverse reinforcement in the top of the slab




**TYPICAL DECK SECTION**

The cost of pipe and fitting shall be considered incidental to the cost of Structural Steel

Assembled drains shall be painted in accordance with the specifications.




**S2e Bars**

**BAR CUTTING DIAGRAM**

(2 places)

1. Negative Moment Bars
   S5e spaced between S3e (Piers 1 & 3)
   S6e spaced between S3e (Pier 2)
2. Mandatory roughened construction joint. Railing concrete to be placed after deck or sidewalk concrete has properly cured.

| REVISION | DATE |
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|---|---|
| DATE: 09/20/2018 | CHECKED BY |
| DESIGNED BY: J. Musch | B. Goodrich |
| DETAILED BY: J. Musch | B. Goodrich |

**Commonwealth of Kentucky**
**DEPARTMENT OF HIGHWAYS**

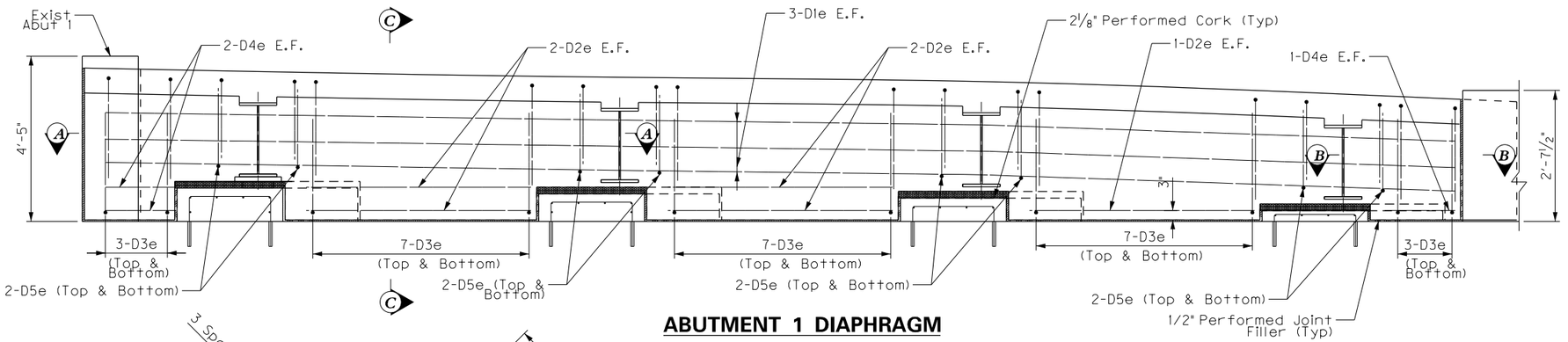
COUNTY: **TRIGG**

ROUTE: **KY 139**

CROSSING: **BURGE CREEK**

***SUPERSTRUCTURE DETAILS***

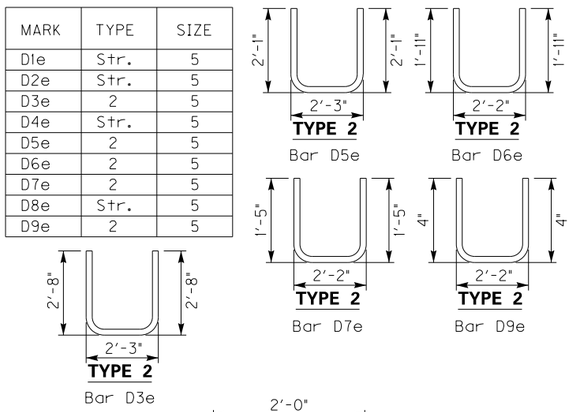
| BRIDGE NUMBER | PREPARED BY | SHEET NO. |
|---|---|---|
| 111B00012N | AECOM / BRIDGING KENTUCKY | S12 |
| | | DRAWING NO. 27826 |

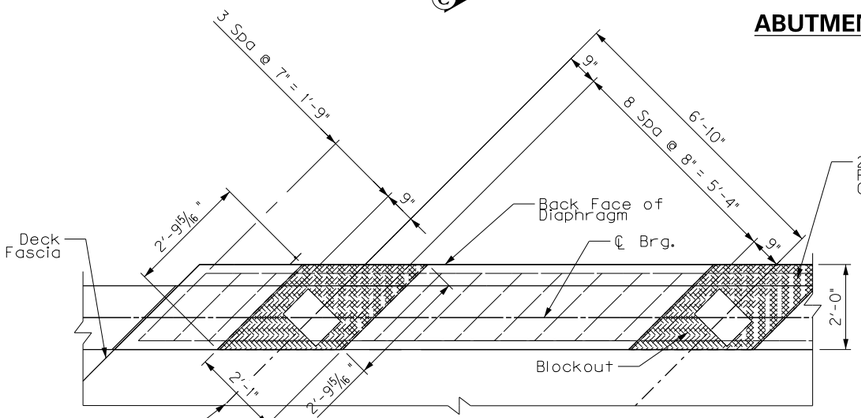



## ABUTMENT 1 DIAPHRAGM

## BILL OF REINFORCEMENT – DIAPHRAGMS

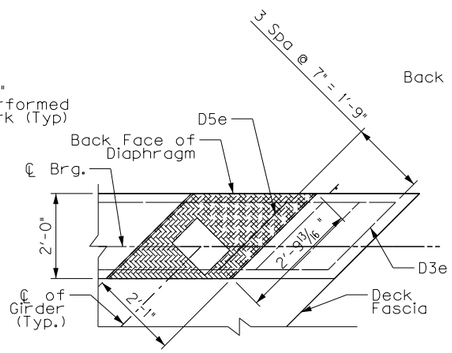
| MARK | TYPE | SIZE |
|---|---|---|
| D1e | Str. | 5 |
| D2e | Str. | 5 |
| D3e | 2 | 5 |
| D4e | Str. | 5 |
| D5e | 2 | 5 |
| D6e | 2 | 5 |
| D7e | 2 | 5 |
| D8e | Str. | 5 |
| D9e | 2 | 5 |



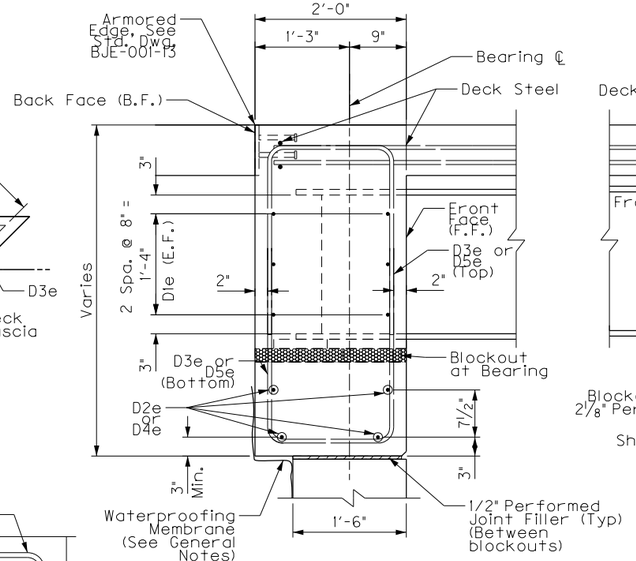

## SECTION A–A

Abut 1 shown, Abut 2 similar

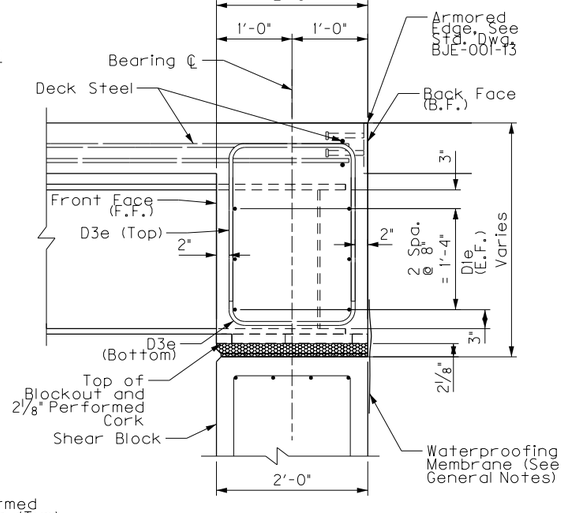



## SECTION B–B

Abut 1 shown, Abut 2 similar



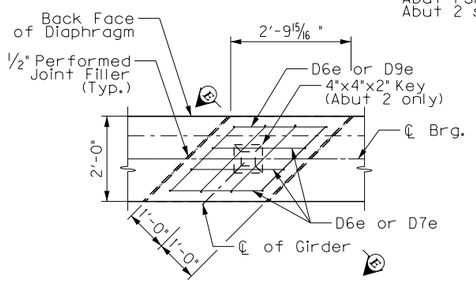

## SECTION C–C



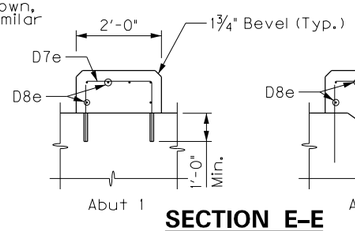

## SECTION D–D

Notes:
1. The cost of all material & labor for Waterproofing Membrane, Performed Joint Filler, and Performed Cork shall be considered incidental to the cost of Class "AA" Concrete.

2. The cost of drilling holes, grouting, and epoxy bonding material shall be concidered incidental to the cost of Class "AA" Concrete.




## SHEAR BLOCK PLAN

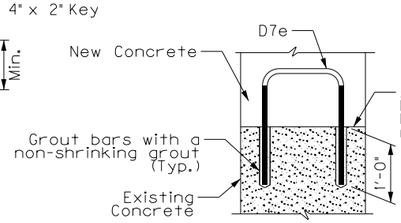



## SECTION E–E

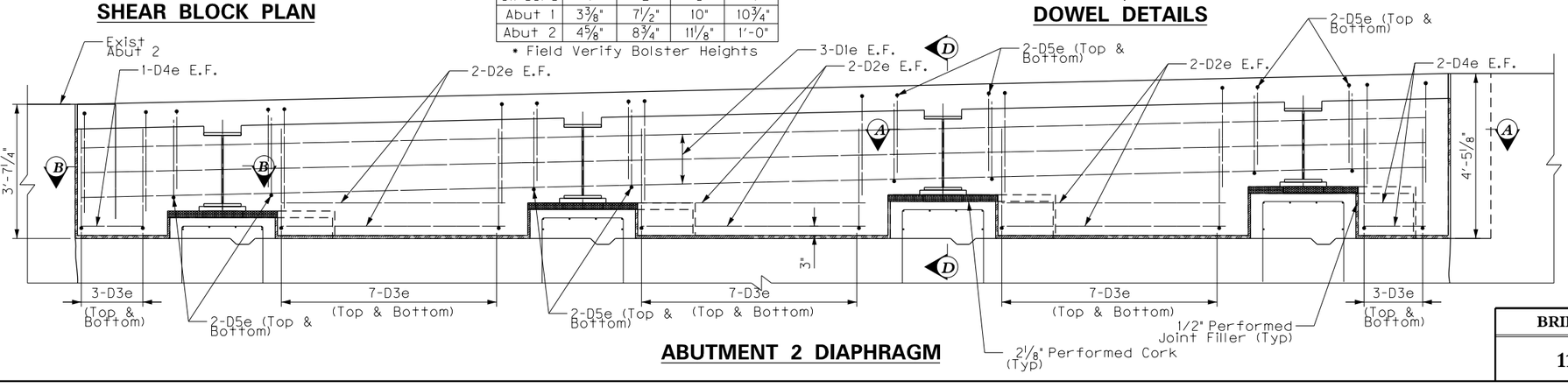
## BOLSTER HEIGHT

| Girders | 1 | 2 | 3 | 4 |
|---|---|---|---|---|
| Abut 1 | 3⅜" | 7½" | 10" | 10¾" |
| Abut 2 | 4⅝" | 8¾" | 11⅛" | 1'-0" |

* Field Verify Bolster Heights




## DOWEL DETAILS




## ABUTMENT 2 DIAPHRAGM

| REVISION | DATE |
|---|---|
| DATE: 09/20/2018 | CHECKED BY |
| DESIGNED BY: B. GOODRICH | T. DOAN |
| DETAILED BY: B. GOODRICH | T. DOAN |

**Commonwealth of Kentucky**
**DEPARTMENT OF HIGHWAYS**

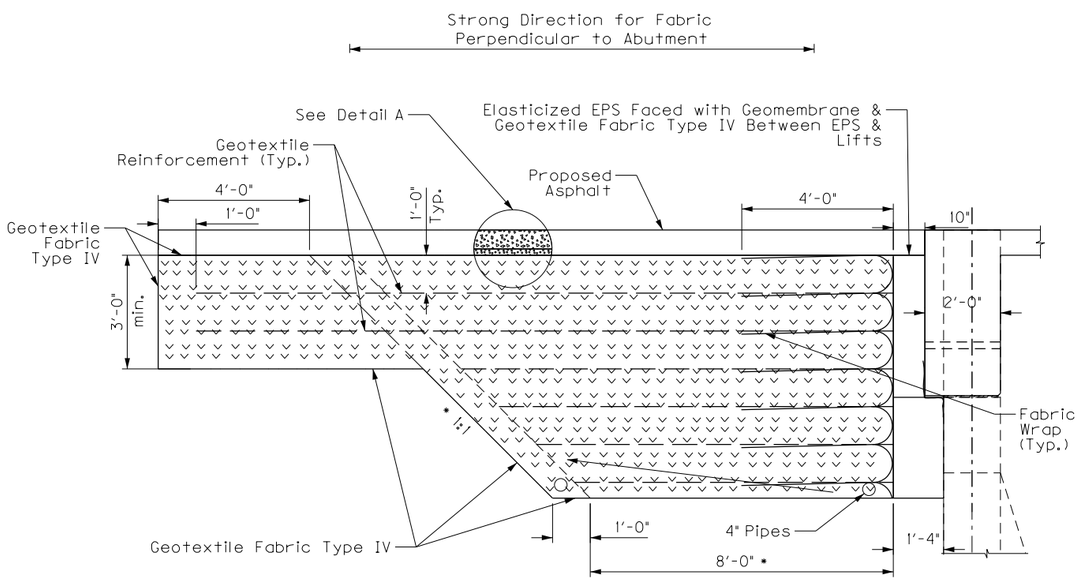
COUNTY: **TRIGG**

ROUTE: **KY 139** | CROSSING: **BURGE CREEK**

## ABUTMENT DIAPHRAGM DETAILS

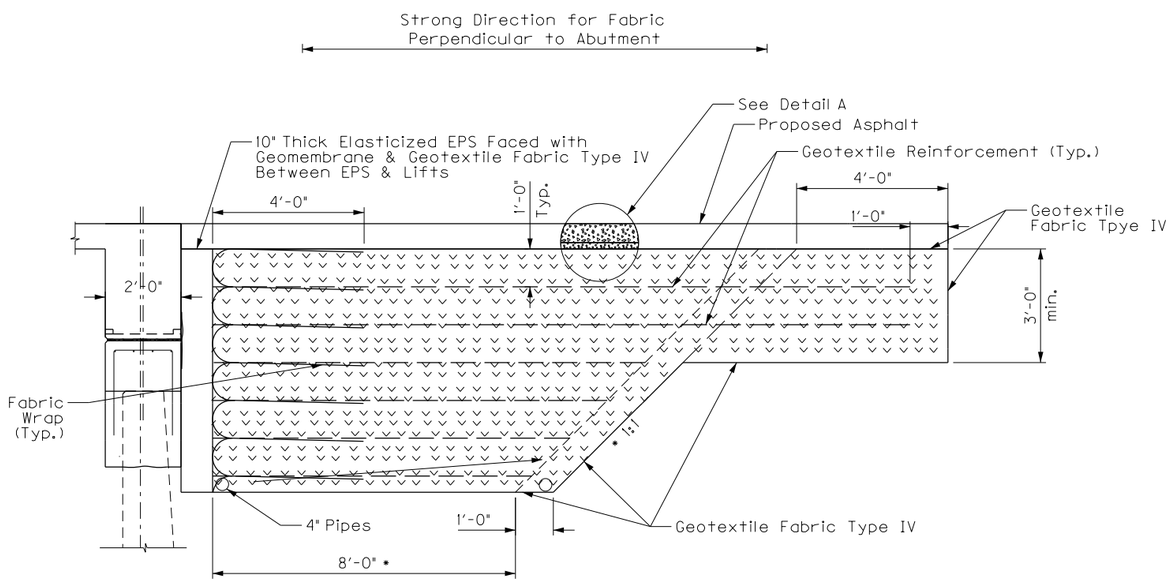
| BRIDGE NUMBER | PREPARED BY | SHEET NO. |
|---|---|---|
| 111B00012N | AECOM / BRIDGING KENTUCKY | S13 |
| | | DRAWING NO. 27826 |

FILE NAME: C:\PW_WORKING\D0128153\IX17_BORDER.DGN
USER: dan.broekhuizen
DATE PLOTTED: September 19, 2018
E-SHEET NAME:
Power GEOPAK v8.11.9.832




## ABUTMENT 1 SECTION

* Normal to Abutment




## ABUTMENT 2 SECTION

* Normal to Abutment

## LEGEND

STRUCTURE GRANULAR BACKFILL

EMBANKEMENT (GRANULAR, ROCK OR SOIL PER PLANS)

## NOTES

1. Use with current Standard Drawings RGX-100 and RGX-105 except where the Special Note for Treatment of End Bent or Abutment Backfills Using Geotextile Reinforced Backfill and Elastic Inclusion directs otherwise.

2. The strong direction for the fabric shall be placed perpendicular to the Abutment.

3. Granular Backfill shall be crushed stone meeting the following gradation:

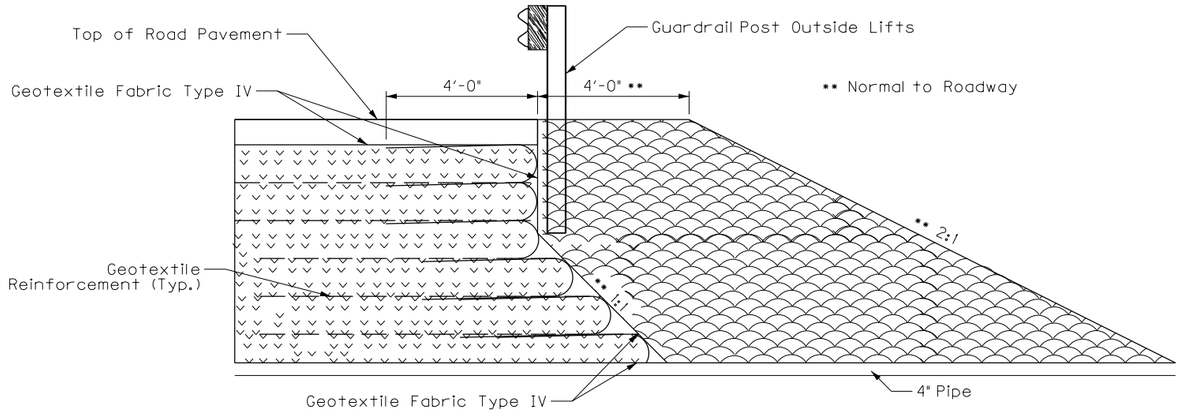
| Sieve Size | Percent Passing |
|---|---|
| 1 1/2" | 100% |
| No. 4 | 0 - 25% |
| No. 8 | 0 - 5% |

4. Geotextile Reinforcement shall be Type V High Strength Geotextile Fabric except that it shall have a minimum ultimate strength of 1350 lb/ft and minimum strength at 2% strain of 380 lb/ft when tested by ASTM D 4595.

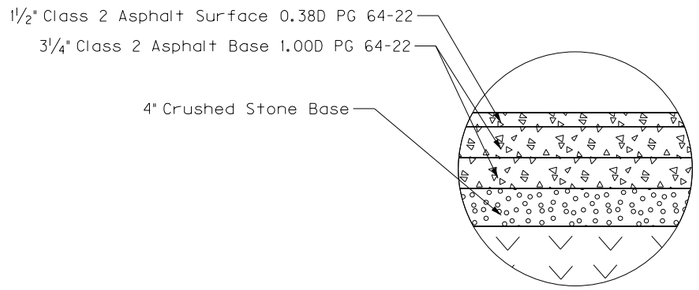
5. Geotextile Reinforcement shall wrap around to enclose the backfill material on three sides (at the end bent/abutment and on the side slopes).

6. Compact Granular Backfill using a suitable compactor until there is no visible sign of further compression. A minimum of four passes shall be applied per lift.

7. Hand operated compacted equipment such as lightweight mechanical tampers, vibratory places, or rollers are required within 3 feet of the back of the abutment.




## SIDE SLOPE DETAIL




## DETAIL A

| REVISION | DATE |
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|---|---|
| DATE: 09/20/2018 | CHECKED BY |
| DESIGNED BY: J. MUSCH | B. GOODRICH |
| DETAILED BY: J. MUSCH | B. GOODRICH |

**Commonwealth of Kentucky**
**DEPARTMENT OF HIGHWAYS**

COUNTY: **TRIGG**

ROUTE: **KY 139** | CROSSING: **BURGE CREEK**

# *GRS ABUTMENT TREATMENT*

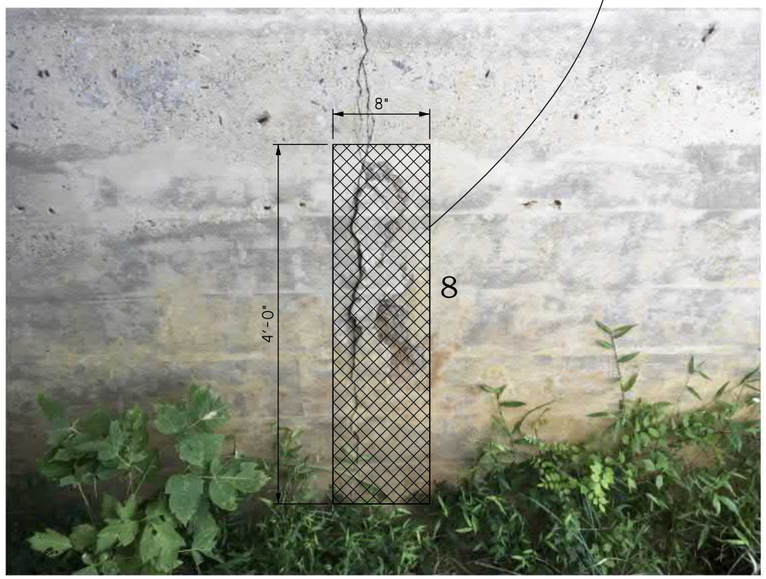
| BRIDGE NUMBER | PREPARED BY | SHEET NO. |
|---|---|---|
| 111B00012N | AECOM / BRIDGING KENTUCKY | S14 |
| | | DRAWING NO. 27826 |


**ELEVATION – NORTH FACE PIER 1**


**ELEVATION – SOUTH FACE PIER 1**

Notes:
1. Concrete Patching Repair - 6.6 SQFT
   (Spall 5'-3" V. x 1'-3" H x 1" Deep with 2 Exposed Bars)
2. Epoxy Injection Crack Repair - 15 LF
   (1/8" Wide Vertical Crack, Full Height)
3. Concrete Patching Repair - 5.25 SQFT
   (Spall 1'-9" H x 3' V x 2" Deep with 3 Exposed Bars)
4. Concrete Patching Repair - 0.5 SQFT
   (Spall 6" V x 1'-0" H x 2.5" Deep)
5. Epoxy Injection Crack Repair - 10 LF
   (1/16" Wide Map Cracking Throughout Cap)
6. Epoxy Injection Crack Repair - 5 LF
   (1/16" Wide Vertical Crack)
7. Concrete Patching Repair - 0.94 SQFT
   (Spall 2'-3" H x 5" V x 1.5" Deep)
8. Epoxy Injection Crack Repair - 15 LF
   (1/4" Wide Vertical Crack Full Height)
   Concrete Patching Repair - 3.33 SQFT
   (Top Spall 2' V x 4" H, Bott. Spall 4' V x 8" W)
9. Concrete Patching Repair - 1.33 SQFT
   (Delam. 2' V x 8" H)
10. Concrete Patching Repair - 18 SQFT
    (Spall/Delam. 6' H x 3' V x 4" Deep with 3 Exposed Bars)
11. Concrete Patching Repair - 12 SQFT
    (Delam Patch 4' H x 3' V)
12. Concrete Patching Repair - 52.5 SQFT
    (Spall 3.5' H x 15' V Full Height x 2" Deep with 3 Exposed Vertical Bars and 10 Stirrups with L.O.S.)
13. Epoxy Injection Crack Repair - 15 LF
    (1/16" Wide V Map Cracking Between #8 & #12 Repairs)
14. Concrete Patching Repair - 26.25 SQFT
    (Spall 2'-6" H x 10'-6" V x 2.5" Deep with 3 Exposed Bars)
15. Concrete Patching Repair - 12 SQFT
    (Spall 4'-0" H x 3' V x 1.5" Deep with 3 Exposed Bars)
16. Epoxy Injection Crack Repair - 19 LF
    (2 Vertical Cracks up to 1/8" Wide 75% Full Height and 50% Full Height)
17. Epoxy Injection Crack Repair - 15.7 LF
    (1/4" Wide Vertical Crack with 2' V Delam)
18. Epoxy Injection Crack Repair - 16 LF
    (1/8" Wide Vertical Cracking with Minor Map Cracking Throughout Upstream Column)
19. Concrete Patching Repair - 46.5 SQFT
    (Spall 15'-6" V x 3' H x 1.5" Deep)
20. Additional Quantity As Directed By The Engineer
    Concrete Patching Repair - 46 SQFT
    Epoxy Injection Crack Repair - 28 LF

    Concrete Patching Repair - 228 SQFT
    Epoxy Injection Crack Repair - 139 LF




**ELEVATION – NORTH FACE PIER 1**


**ELEVATION – UPSTREAM COLUMN PIER 1**

| REVISION | DATE |
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| DESIGNED BY: B. GOODRICH | T. DOAN |
| DETAILED BY: B. GOODRICH | T. DOAN |

**Commonwealth of Kentucky**
**DEPARTMENT OF HIGHWAYS**

COUNTY: **TRIGG**

ROUTE: **KY 139**

CROSSING: **BURGE CREEK**

***PIER 1 – REPAIR***

BRIDGE NUMBER: **111B00012N**

PREPARED BY: AECOM

BRIDGING KENTUCKY

SHEET NO.: S15

DRAWING NO.: **27826**


**ELEVATION – NORTH FACE PIER 2**


**ELEVATION – SOUTH FACE PIER 2**


**ELEVATION – UPSTREAM COLUMN PIER 2**


**ELEVATION – DOWNSTREAM COLUMN PIER 2**

Notes:
1. Concrete Patching Repair - 14 SQFT
   (Spall 5'-6" Vertical x 2'-6" Horizontal x 1.5" Deep)
2. Epoxy Injection Crack Repair - 54 FT
   (Up to 1/8" Wide Vertical Cracks Throughout Downstream Column)
3. Epoxy Injection Crack Repair - 36 FT
   (Cracking with Heavy Efflo. on Bottom of Cap (Full Length)
4. Concrete Patching Repair - 1 SQFT
   (Spall 2'-0" Horizontal x 5" Vertical x 1.5" Deep)
5. Concrete Patching Repair - 1 SQFT
   (Spall 1'-6" Horizontal x 5" Vertical x 1.5" Deep)
6. Epoxy Injection Crack Repair - 19 FT
   (1/8" to 1/4" Wide Vertical Crack (Full Height)
7. Map Cracking Throughout Between #6 Vertical Crack and Upstream Column
8. Concrete Patching Repair - 15 SQFT
   (Delamination/Spalled Repair 5' Horizontal x 3' Vertical x 3" Deep with 7 Exposed Bars)
9. Concrete Patching Repair - 130 SQFT
   (Spall 18'-6" Vertical x 7' Wide (Wrapping Around Upstream Nose) x 3" Deep with 4 Vertical Bars and 11 Stirrups Exposed.)
10. Concrete Patching Repair - 6 SQFT
    (Spall/Delamination Patch 2' Wide x 3' Vertical (Upstream Nose)
11. Epoxy Injection Crack Repair - 10 FT
    (Map Cracking (up to 1/16" Wide) Throughout Cap)
12. Epoxy Injection Crack Repair - 19 FT
    (1/8" to 1/4" Wide Vertical Crack Full Height (19')
13. Concrete Patching Repair - 15 SQFT
    (Spall/Delamination Patch 5' Horizontal x 3' Vertical x 2" Deep (Downstream Nose)
14. Concrete Patching Repair - 2 SQFT
    (18" Diameter Spall x 2" Deep)
15. Concrete Patching Repair - 40 SQFT
    (40 sft Honeycombing)
16. Epoxy Injection Crack Repair - 19 FT
    (Up to 1/8" Wide Vertical Cracking with Efflo. (Full Height))
17. Concrete Patching Repair - 9 SQFT
    (Spall/Delamination Patch 3' Horizontal x 3' Vertical x 2" Deep)
18. Additional Quantity As Directed By The Engineer
    Concrete Patching Repair - 56 SQFT
    Epoxy Injection Crack Repair - 40 LF

Concrete Patching Repair - 289 SQFT
Epoxy Injection Crack Repair - 197 FT

| REVISION | DATE |
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| DATE: 09/20/2018 | CHECKED BY |
| DESIGNED BY: B. GOOD | T. DOAN |
| DETAILED BY: B. GOOD | T. DOAN |

**Commonwealth of Kentucky**
**DEPARTMENT OF HIGHWAYS**

COUNTY: **TRIGG**

ROUTE: **KY 139**

CROSSING: **BURGE CREEK**

***PIER 2 – REPAIR***

BRIDGE NUMBER: **111B00012N**

PREPARED BY: AECOM

BRIDGING KENTUCKY

SHEET NO. S16

DRAWING NO. 27826


**ELEVATION – NORTH FACE PIER 3**


**ELEVATION – SOUTH FACE PIER 3**

Notes:

1. Concrete Patching Repair - 6 SQFT
   (Spall / Delam 2'H x 3' V x 2" D)
2. Epoxy Injection Crack Repair - 18.25 FT
   (1/8" Vert. Crack Full Height)
3. Concrete Patching Repair - 2 SQFT
   (8" Dia. Spall)
4. Concrete Patching Repair - 50 SQFT
5. Epoxy Injection Crack Repair - 18.25 FT
   Concrete Patching Repair - 2 SQFT
   (1/4" w/ Vert Crack w/ 2 Areas of
   Delem / Spall w/ Exp. Bar (2' V x 4" H)
6. Epoxy Injection Crack Repair - 146 FT
   (8 Vert Cracks up to 1/8" W between 75%
   to 100% full height. Isolate Delam / Spall w/
   exp. bar.)
7. Epoxy Injection Crack Repair - 10 FT
   (1/16" to 1/8" Cracking w/ EFFLO / Rust
   Staining thoughout Cap.)
8. Concrete Patching Repair - 72 SQFT
   (Spall 4' H x 18' V x 3" D w/ 3 vert atirrup exp.)
9. Concrete Patching Repair - 12 SQFT
   (Delam Patch 4' H x 3' V)
10. Concrete Patching Repair - 12 SQFT
    (Delam / Spall Patch 4' H x 3' V x 2" D )
11. Concrete Patching Repair - 38 SQFT
    Epoxy Injection Crack Repair - 18.25 FT
    (Spall Full HT x 2' H and 1/8" Vert. crack (Delam))
12. Epoxy Injection Crack Repair - 18.25 FT
    Concrete Patching Repair - 2 SQFT
    (1/8" Vert. Crack w/ 1 Area of Spall w/ exp. bar)
13. Epoxy Injection Crack Repair - 18.25 FT
    Concrete Patching Repair - 4 SQFT
    (" Vert. Crack w/ 2 Area of Spall w/ exp. bar)
14. Concrete Patching Repair - 1.5 SQFT
    (4 1' V x 3" H Spalls w/ exp. bar)
15. Concrete Patching Repair - 25 SQFT
    (Honeycomb 25 sft)
16. Concrete Patching Repair - 30 SQFT
    (Honeycomb 30 sft)
17. Concrete Patching Repair - 12 SQFT
    (Delam / Spall Patch)
18. Epoxy Injection Crack Repair - 18.25 FT
    (Full Hieght 1/16" Vert Crack w/ EFFLO)
19. Concrete Patching Repair - 2 SQFT
    (16" H x 10" V Spall)
20. Additional Quantity As Directed By The Engineer
    Concrete Patching Repair - 67 SQFT
    Epoxy Injection Crack Repair - 67 LF

Concrete Patching Repair - 335 SQFT
Epoxy Injection Crack Repair - 333 FT

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| REVISION | DATE |
| DATE: 09/20/2018 | CHECKED BY |
| DESIGNED BY: T. DOAN | B. GOODRICH |
| DETAILED BY: T. DOAN | B. GOODRICH |

**Commonwealth of Kentucky**
**DEPARTMENT OF HIGHWAYS**

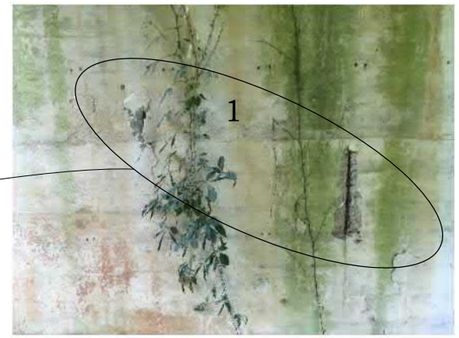
COUNTY: **TRIGG**

ROUTE: **KY 139**

CROSSING: **BURGE CREEK**

***PIER 3 – REPAIR***

| BRIDGE NUMBER | PREPARED BY | SHEET NO. |
|---|---|---|
| 111B00012N | AECOM / BRIDGING KENTUCKY | S17 |
| | | DRAWING NO. 27826 |


**ELEVATION – ABUTMENT 2**


**ELEVATION – EAST WINGWALL ABUTMENT 2**


**ELEVATION – WEST WINGWALL ABUTMENT 2**

Notes:
1. Concrete Patching Repair - 4 SQFT
   (Spall/Delam 4 sft)
2. Tree Trimming - 22 LF
   (Vegetation Growth)
3. Concrete Patching Repair - 1 SQFT
   (1' Diameter Spall x 1.5" Depth with 1 Exposed Bar)
4. Concrete Patching Repair - 20 SQFT
   (Map Cracking with Mod. Efflo (15-20 sft)
5. Concrete Patching Repair - 60 SQFT
   (Map Cracking with Mod. Efflo (60 sft))
6. Additional Quantity As Directed By The Engineer
   Concrete Patching Repair - 22 SQFT

Concrete Patching Repair - 107 SQFT
Tree Trimming - 22 LF

| REVISION | DATE |
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| DESIGNED BY: B. GOODRICH | T. DOAN |
| DETAILED BY: B. GOODRICH | T. DOAN |

**Commonwealth of Kentucky**
**DEPARTMENT OF HIGHWAYS**

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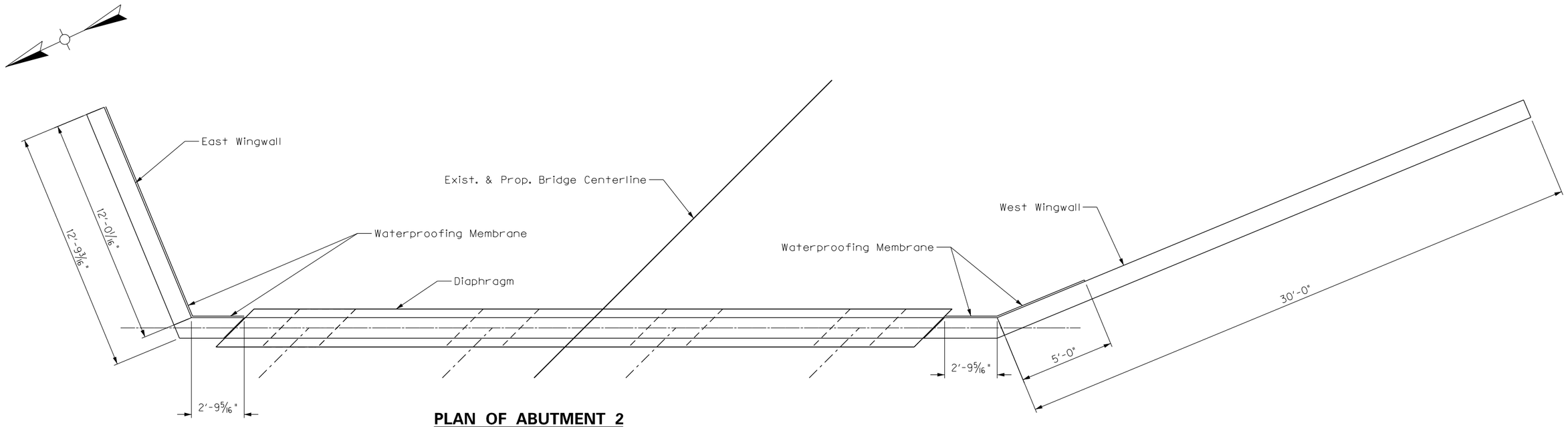
**TRIGG**

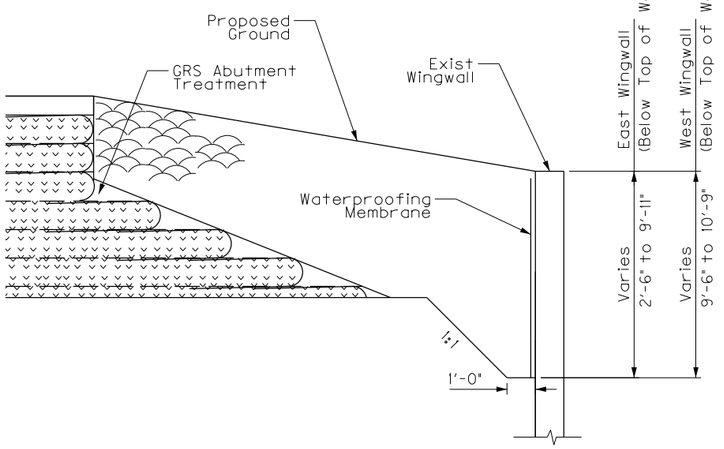
| ROUTE | CROSSING |
|---|---|
| KY 139 | BURGE CREEK |

***ABUTMENT 2 – REPAIR***

| BRIDGE NUMBER | PREPARED BY | SHEET NO. |
|---|---|---|
| 111B00012N | AECOM / BRIDGING KENTUCKY | S18 |
| | | DRAWING NO. 27826 |




## PLAN OF ABUTMENT 2




## LEGEND

GRANULAR BACKFILL

EMBANKEMENT (GRANULAR, ROCK OR SOIL PER PLANS)

## TYPICAL SECTION THRU WINGWALL

Apply Waterproofing Membrane to back face of Abut 2 Wingwalls.

East Wingwall: Excavate 2'-6" below top of wall at end of wingwall to 9'-11" below top of wall at edge of Diaphragm. Apply Waterproofing Membrane to back face of wall for full length of wingwall to edge of Diaphragm.

West Wingwall: Excavate 9'-6" below top of wall at approximately 5'-0" from wingwall/abutment interface to 10'-9" below top of wall at edge of Diaphragm. Apply Waterproofing Membrane to back face of wall 5'-0" from start of wingwall to edge of Diaphragm.

| REVISION | DATE |
|---|---|
| DATE: 09/20/2018 | CHECKED BY |
| DESIGNED BY: B. GOODRICH | T. DOAN |
| DETAILED BY: B. GOODRICH | T. DOAN |

**Commonwealth of Kentucky**
**DEPARTMENT OF HIGHWAYS**

COUNTY: **TRIGG**

ROUTE: **KY 139**

CROSSING: **BURGE CREEK**

***ABUTMENT 2 – REPAIR***

| BRIDGE NUMBER | PREPARED BY | SHEET NO. |
|---|---|---|
| 111B00012N | AECOM / BRIDGING KENTUCKY | S19 |
| | | DRAWING NO. 27826 |